



ENVIRONMENTAL ASSESSMENT

GATE SECURITY IMPROVEMENTS AT ALTUS AIR FORCE BASE, OKLAHOMA

**United States Air Force
Air Education and Training Command
Altus Air Force Base, Oklahoma**

July 2005

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14. ABSTRACT Controlled gate entry provides security by monitoring and controlling traffic entering a military installation. The degree of security required depends on the sensitivity level of the mission and the level of force protection at any given time. Over time, force protection standards have increased in response to current global conditions as well as technological advances. In 2002, the Air Force published the Entry Control Facilities Design Guide. The security gates at Altus AFB do not meet the current guidelines and standards defined by the Air Force in the 2002 guide. The proposed action would resolve these deficiencies and increase ability to handle the larger volume of traffic without impacting the control and inspection process. The proposed action includes security improvements at the North Gate, Main Gate, and South Gate on Altus AFB. These security improvements include new guardhouses, vehicle and truck inspection stations increased number of lanes accessing the base, enhanced lighting and signage, improved force protection elements, and new canopies and storm shelters. Additionally, a new visitor center and parking will be constructed at the Main Gate. Conversely, the Air Force could select to take no action (no-action alternative). The following biophysical resources were identified for study at Altus AFB: noise, air quality, earth resources, water resources hazardous materials and hazardous waste, biological resources, utilities and infrastructure and socioeconomics.					
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**FINDING OF NO PRACTICABLE ALTERNATIVE
AND
FINDING OF NO SIGNIFICANT IMPACT
GATE SECURITY IMPROVEMENTS AT ALTUS AIR FORCE BASE, OKLAHOMA**

AGENCY: United States Air Force

PURPOSE: The 97th Air Mobility Wing (97 AMW) at Altus Air Force Base (AFB) has prepared an environmental assessment (EA), which is attached and incorporated by reference, for the construction of gate security improvements at Altus AFB. This EA has been accomplished pursuant to the National Environmental Policy Act (NEPA); the Council of Environmental Quality regulations implementing the NEPA; Department of Defense (DoD) Directive 6050.1, *Environmental Effects in the United States of DoD Actions*; and Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process*, Interim Change 2003-1, which implements these regulations. AFI 32-7061 has recently been amended and appears, as amended, in 32 CFR Part 989.

PROPOSED ACTION: Controlled gate entry provides security by monitoring and controlling traffic entering a military installation. The degree of security required depends on the sensitivity level of the mission and the level of force protection at any given time. Over time, force protection standards have increased in response to current global conditions as well as technological advances. In 2002, the Air Force published the Entry Control Facilities Design Guide. The security gates at Altus AFB do not meet the current guidelines and standards defined by the Air Force in the 2002 guide. A recent study at Altus AFB identified deficiencies in the current configuration at the security gates. The proposed action would resolve these deficiencies and increase the gates' ability to handle the larger volume of traffic without impacting the control and inspection process. The proposed action includes security improvements at the North Gate, Main Gate, and South Gate on Altus AFB. These security improvements include new guardhouses, vehicle and truck inspection stations, increased number of lanes accessing the base, enhanced lighting and signage, improved force protection elements, and new canopies and storm shelters. Additionally, a new visitor center and parking will be constructed at the Main Gate.

FORESEEABLE ACTIONS: Foreseeable actions include the proposed privatization of military family housing (MFH) at Altus AFB, a new CE Compound, changes to the C-17 aircrew training program conducted at Altus AFB, and installation and operation of a Digital Airport Surveillance Radar (DASR) system at Altus AFB.

SUMMARY OF FINDINGS: This EA evaluated the environmental sensitivity of Altus AFB with regard to the proposed projects and an Environmental Impact Statement is not necessary and will not be prepared. Potential impacts are summarized below.

Noise. Demolition and construction activities in the vicinity of the gate locations will result in a minor temporary increase in noise levels. The primary noise from these construction activities will be generated by vehicles and equipment involved in site clearing and grading, construction, landscaping, and finishing work. Typical noise levels generated by these construction activities range from an energy equivalent sound level of 75 to 89 A-weighted sound level, measured in decibels, at 50 feet from the source. Potential cumulative impacts would increase noise only slightly. Impacts will not be significant.

Air Quality. Emissions of all pollutants will be less than 250 tons per year; therefore, the proposed action will not be considered regionally significant. The maximum annual increase in emissions for any pollutant as compared to baseline emissions will be less than 0.18 percent for particulate matter equal to or less than 10 microns in diameter (PM₁₀). The primary short-term air quality impacts resulting from these projects at Altus AFB will be a temporary increase of air pollutants within Jackson County and the Southwestern Oklahoma Intrastate Air Quality Control Region, which will cease as soon as the projects are completed. Fugitive dust emissions from ground-disturbing activities will be minimized and kept under proper control. The primary short-term air quality impacts resulting from these projects at Altus AFB will be the same as for the proposed action. Altus AFB is located in an area classified as attainment or unclassified for all criteria pollutants. Therefore, the proposed action is not subject to the de minimis and conformity determination requirements of the US Environmental Protection Agency Final Conformity Rule as defined in 40 Code of Federal Regulations (CFR) 93.153. Additionally, the proposed construction projects will be in compliance with the Oklahoma State Implementation Plan.

Earth Resources. Demolition and construction activities at Altus AFB will require limited soil disturbances. These activities are typical at construction sites. No impacts to geology and soils from the proposed action or ongoing actions are expected at any of the proposed gate locations. Cumulative impacts to earth resources from the proposed and ongoing actions are not expected.

Water Resources. Approximately 1.76 acres of impervious (impenetrable) cover will be added from the construction of the proposed facilities. Compared to the estimated 740 acres of impervious cover on Altus AFB, this will increase the total amount of impervious cover (0.24 percent) and result in a minimal impact on the total volume of stormwater runoff. The construction and addition projects at Altus AFB are expected to cumulatively increase impervious surface cover. The net cumulative effect on stormwater due to the proposed activities would be minimal when compared to the whole installation. There will be no significant impacts to water resources or water quality.

Hazardous Materials and Hazardous Waste. Hazardous materials will not be used and hazardous waste will not be generated by Altus AFB as a result of the proposed demolition and construction activities. It is not anticipated that asbestos and lead-based paint will be encountered during the demolition activities. However, if necessary, asbestos and lead-based paint will be managed separately from the rest of the construction waste materials. A contractor trained in the disposal and management of this special waste will be used to perform this work. If encountered, the asbestos and lead-based paint removal will be managed and disposed according to the Altus AFB's *Lead-Based Paint Management Plan*, *Asbestos Management Plan*, and the *Asbestos Operations Plan*. No impacts are expected.

Biological Resources. The proposed demolition and construction activities would occur within previously disturbed portions of Altus AFB. There would be no impacts to vegetation outside the proposed project areas and best management practices during demolition and construction would minimize impacts to vegetation at and near the construction sites. New trees, shrubs, and other landscaping would provide additional urban habitat for birds and other wildlife. As a result, overall impacts to vegetative resources will be minimal. Although the Main Gate and South Gate are located in the 100-year floodplain, the proposed facilities and roadways and

parking areas will be elevated above floodplain levels. There will be no change in the capacity of the floodplain, nor will stormwater quality be diminished. There would be no cumulative impacts as a result of the proposed action. Impacts to biological resources are not expected.

Utilities and Infrastructure. There will be no change in the number of individuals working or living on Altus AFB. Therefore, there will be no measurable change in the amount electricity, natural gas, or potable water used on the installation. Additionally there would be no increase in the amount of sanitary waste generated as a result of the proposed action. The amount of impervious cover on the installation will increase by approximately 1.76 acres. Compared to the 740 existing acres of impervious cover, this increase will not significantly affect the amount of stormwater generated on base. The construction and demolition activities at each gate will create a short-term impact to individuals accessing and leaving the installation. However, these impacts will be offset by the interim measures defined in the proposed action and will be temporary in duration. Once construction is complete, the traffic flow onto and off of the base will be improved with shorter queuing times and more efficient movement of vehicles. No significant long-term changes or impacts to transportation or utility system components are anticipated.

Socioeconomics. There will be no measurable impact on the local or regional economy as a result of the proposed action. There will be no impact on the number of individuals living in the region, economy, housing market, or regional education or schools. The amount of money generated by the construction and demolition activities is consistent with recent efforts on Altus AFB. Therefore, there will not be any significant impacts on socioeconomics as a result of the proposed action.

ENVIRONMENTAL JUSTICE: Activities associated with the proposed action will not impose adverse environmental effects on adjacent populations. Therefore, no disproportionately high and adverse effects will occur to minority populations or low-income populations.

EXECUTIVE ORDER 11988: Executive Order 11988 directs federal agencies to provide leadership and take action to reduce risk of flood loss; minimize the impact of flood on human safety, health, and welfare; and enhance the natural and beneficial values served by floodplains.

Executive Order 11988 requires that an agency avoid undertaking or providing assistance for new construction located in floodplains. Executive Order 11988 also requires that if the head of the agency finds that there is no practicable alternative to such construction, they must ensure that the proposed action includes all practicable measures to minimize harm to floodplains which may result from such use. All of the proposed action will be located within, or adjacent to, the 100-year floodplain. Construction of the gate security improvements in the 100-year floodplain is consistent with the installation's General Plan. To reduce the possibility of future flooding, the proposed action includes several flood control projects. Further, the roadway pavements and facilities will be built above the 100-year floodplain. These projects will ease existing flooding conditions and further control storm water runoff. The gates and adjacent fencing are designed to have sufficient space above the ground surface to allow for the free flow of water in the event of flooding.

NO-ACTION ALTERNATIVE: The conditions and characteristics anticipated under the no-action alternative for each of the biophysical resources would continue at levels equal to those occurring under the existing condition. No significant environmental impacts are experienced or generated by the existing condition. Likewise, no environmental regulations are violated by the existing operating procedures. Therefore, no significant impacts would be expected for the no-action alternative.

PUBLIC REVIEW AND INTERAGENCY COORDINATION: Pursuant to 32 CFR 989.14, the 30-day public comment period for the subject EA was completed. The public notice was placed in the Altus Times and a copy of the EA was made available at the City of Altus Public Library and the Altus AFB Library. No comments were received prior to 5 July 2005. All activities in the proposed action have been coordinated within the appropriate federal, state and local agencies and have been found to comply with the criteria or standards of environmental quality.

FINDING OF NO PRACTICABLE ALTERNATIVE: Pursuant to EO 11988, and taking the above information into account, I find that there is no practicable alternative to the proposed construction of the gate security improvements, and that the proposed action includes all practicable measures to minimize harm to the existing environment. Overall, about 1.76 acres of impervious (impenetrable) cover will be added from the construction of the proposed facilities resulting in a minimal impact on the total volume of stormwater runoff. Additionally, the Altus AFB Environmental Flight has sent notices to Federal Emergency Management Agency and the Corps of Engineers.



LEONARD A. PATRICK, Colonel, USAF
The Civil Engineer
HQ Air Education and Training Command

8 Nov 05

Date

FINDING OF NO SIGNIFICANT IMPACT: Based on my review of the facts and analysis contained in this environmental assessment, I conclude the implementation of the proposed action will not produce significant impacts, either by itself, or considering cumulative impacts. Accordingly, the requirements of the National Environmental Policy Act, regulations promulgated by the President's Council on Environmental Quality, and Air Force Instruction 32-7061 are fulfilled and an environmental impact statement is not required.

CARLTON D. EVERHART II, Colonel, USAF
Commander
97th Air Mobility Wing

Date

ACRONYMS AND ABBREVIATIONS

µg/m ³	micrograms per cubic meter	MFH	military family housing
°F	Fahrenheit	mgd	Million gallons per day
433 MAW	433 rd Military Airlift Wing	mg/L	milligrams per liter
97 AMW	97 th Air Mobility Wing	MHz	Megahertz
ADSL	average daily student load	MTMC	Military Traffic Management Command
AETC	Air Education and Training Command	NAAQS	National Ambient Air Quality Standards
AFB	Air Force Base	NEPA	National Environmental Policy Act
AFI	Air Force Instruction	NFIP	National Flood Insurance Program
AIHA	American Industrial Hygiene Association	NHPA	National Historic Preservation Act
AMU	Aircraft Maintenance Unit	NO ₂	nitrogen dioxide
ANSI	American National Standards Institute	NOI	Notice of Intent
AQCR	Air Quality Control Region	NOT	Notice of Termination
BMP	best management practice	NO _x	nitrogen oxide
CAA	Clean Air Act	NR	not reported
CCTS	Combat Crew Training School	O ₃	ozone
CE	Civil Engineer	ODEQ	Oklahoma Department of Environmental Quality
CEQ	Council on Environmental Quality	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PM ₁₀	Particulate matter equal to or less than 10 microns in diameter
CERL	Construction and Engineering Research Laboratory	ppm	parts per million
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
CO	carbon monoxide	ROI	Region of Influence
CWA	Clean Water Act	SAC	Strategic Air Command
DASR	Digital Airport Surveillance Radar	SFHA	special flood hazard area
dB	Decibel	SHPO	State Historic Preservation Officer
dBA	A-weighted sound level, measured in decibels	SO ₂	sulfur dioxide
DoD	Department of Defense	SO _x	sulfur oxide
DoDD	DoD Directives	SWPPP	Stormwater Pollution Prevention Plan
EA	Environmental Assessment	sf	square feet
ECF	Entry Control Facilities	sy	square yard
EIAP	Environmental Impact Analysis Process	tpy	tons per year
EIS	Environmental Impact Statement	US	United States
EO	Executive Order	USACE	US Army Corps of Engineers
FAA	Federal Aviation Administration	USAF	United States Air Force
FONSI	Finding of No Significant Impact	USEPA	United States Environmental Protection Agency
FY	Fiscal Year	USAF	United States Air Force
IRP	Installation Restoration Program	USC	United States Code
kVA	Kilovolts-amperes	USFWS	United States Fish and Wildlife Service
kW	kilowatts	VOC	volatile organic compound
kWH	Kilowatt-hours	WWTP	Wastewater Treatment Plant
L _{dn}	day-night average sound level		
L _{eq}	equivalent sound level		
L _p	sound pressure level		
LF	linear feet		
MAC	Military Airlift Command		

Environmental Assessment

Gate Security Improvements at Altus Air Force Base, Oklahoma

**Department of the Air Force
97th Air Mobility Wing
Altus Air Force Base, Oklahoma**

July 2005



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PRIVACY ADVISORY NOTICE

Your comments on this draft Environmental Assessment are requested. Letters or other written or oral comments provided may be published in the Final EA. As required by law, comments will be addressed in the Final EA and made available to the public. Any personal information provided will be used only to identify your intention to make a statement during the public comment period, or to fulfill requests for copies of the Final EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

COVER SHEET

Responsible Agency: United States Air Force, Altus Air Force Base (AFB), Oklahoma.

Proposed Action: Construction of Gate Security Improvements, Altus AFB, Jackson County, Oklahoma.

Point of Contact: Mr. James Bellon, 97 CES/CEV, 401 L Avenue, Altus AFB, Oklahoma, 73523-5138, 580.481.7606.

Report Designation: Environmental Assessment (EA)

Abstract: Controlled gate entry provides security by monitoring and controlling traffic entering a military installation. The degree of security required depends on the sensitivity level of the mission and the level of force protection at any given time. Over time, force protection standards have increased in response to current global conditions as well as technological advances. In 2002, the Air Force published the Entry Control Facilities Design Guide. The security gates at Altus AFB do not meet the current guidelines and standards defined by the Air Force in the 2002 guide. The proposed action would resolve these deficiencies and increase ability to handle the larger volume of traffic without impacting the control and inspection process. The proposed action includes security improvements at the North Gate, Main Gate, and South Gate on Altus AFB. These security improvements include new guardhouses, vehicle and truck inspection stations, increased number of lanes accessing the base, enhanced lighting and signage, improved force protection elements, and new canopies and storm shelters. Additionally, a new visitor center and parking will be constructed at the Main Gate. Conversely, the Air Force could select to take no action (no-action alternative). The following biophysical resources were identified for study at Altus AFB: noise, air quality, earth resources, water resources, hazardous materials and hazardous waste, biological resources, utilities and infrastructure, and socioeconomics.

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CHAPTER 1

PURPOSE OF AND NEED FOR ACTION

The Commander, 97th Air Mobility Wing (97 AMW) proposes to construct Gate Security Improvements at Altus Air Force Base (AFB), Oklahoma. This Environmental Assessment (EA) consists of seven chapters covering the purpose and need for the proposed action, a detailed description of the proposed action and alternatives, a discussion of baseline environmental conditions, the environmental analysis, a list of preparers, the agencies and individuals contacted, and the documents used for this EA. This chapter of the document presents the purpose of and need for the action, a description of the location, a description of the scope of the environmental review, an overview of environmental requirements, and an introduction to the organization of this document.

1.1 PURPOSE OF AND NEED FOR ACTION

Altus AFB, an Air Education and Training Command (AETC) installation, is an Air Force Air Mobility Training Center for pilots, navigators, flight engineers, loadmasters, and boom operators. As such, the mission of the 97 AMW, the host unit at Altus AFB, is formal strategic airlift and aerial refueling flying training in C-5, C-17, and KC-135 aircraft for Air Force, Air Force Reserve Command, and Air National Guard units. The base also serves as the aerial port of embarkation for the US Army, and the Air Force. Approximately 333 of the 97 AMW's training instructors are combat-ready aircrew members who are prepared, when needed, for immediate worldwide deployment to support the National Military Strategy by accomplishing air refueling, airlift, and airdrop missions.

In January 1994, the Air Force activated the 97th Training Squadron at Altus AFB. This was the first move in the overall transfer of the KC-135 Combat Crew Training School (CCTS) from Castle AFB, California. The move was completed in March 1995. The Air Force established C-17 academic and simulator training beginning in fiscal year (FY) 1995 and flying training beginning in FY 96. By 2002, the Air Force assigned a total of 10 C-17 aircraft to Altus AFB.

The purpose of a controlled entry gate is to provide security by monitoring and controlling traffic entering a military installation. The degree of security required depends on the sensitivity level of the mission and the level of force protection at any given time. Over time, force protection standards have increased in response to current global conditions as well as technological advances. In 2002, the Air Force published the Entry Control Facilities Design Guide. The security gates at Altus AFB do not meet the current guidelines and standards defined by the Air Force in the 2002 guide.

A recent study at Altus AFB identified deficiencies in the current configuration at the security gates. The proposed action would resolve these deficiencies and increase the gate's ability to handle the larger volume of traffic without impacting the control and inspection process.

1.2 LOCATION

Altus AFB is located in Jackson County in southwestern Oklahoma, approximately 140 miles southwest of Oklahoma City, Oklahoma, as depicted on Figure 1-1.

1.3 SCOPE OF THE ENVIRONMENTAL REVIEW

The *National Environmental Policy Act* (NEPA) of 1969, as amended, requires federal agencies to consider environmental consequences in the decision-making process. The President's Council on Environmental Quality (CEQ) issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required EA as found in Title 40 Code of Federal Regulations (CFR) Sections 1500-1508. The Air Force Environmental Impact Analysis Process (EIAP) is accomplished through adherence to the procedures set forth in Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process*, 12 March 2003, and 32 CFR 989, *Environmental Impact Analysis Process*, which establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action. The CEQ regulations require that an EA:

- Provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).
- Facilitate the preparation of an EIS, when required.

This EA assesses the construction of the Gate Security Improvements (including associated demolition projects) at Altus AFB. The EA identifies, describes, and evaluates the potential environmental impacts that may result from implementation of the proposed action or alternative actions as well as possible cumulative impacts from other reasonably foreseeable actions. As appropriate, the affected environment and environmental consequences of the proposed action, alternative actions, and no action alternative may be described in terms of site-specific descriptions or regional overview. Finally, the EA identifies mitigation measures or best management practices (BMPs) to prevent or minimize environmental impacts, if required.

The resources that could be impacted and are thereby analyzed in this EA include: noise, air quality, earth resources, water resources, infrastructure and utilities, hazardous materials and wastes, and socioeconomics. Assessment of safety and health impacts is not included in this document; all contractors would be responsible for compliance with applicable Occupational Safety and Health Act (OSHA) regulations concerning occupational hazards and specifying appropriate protective measures for all employees. In addition, aircraft operations and maintenance activities, which would be subject to OSHA regulations, are not components of the proposed action.

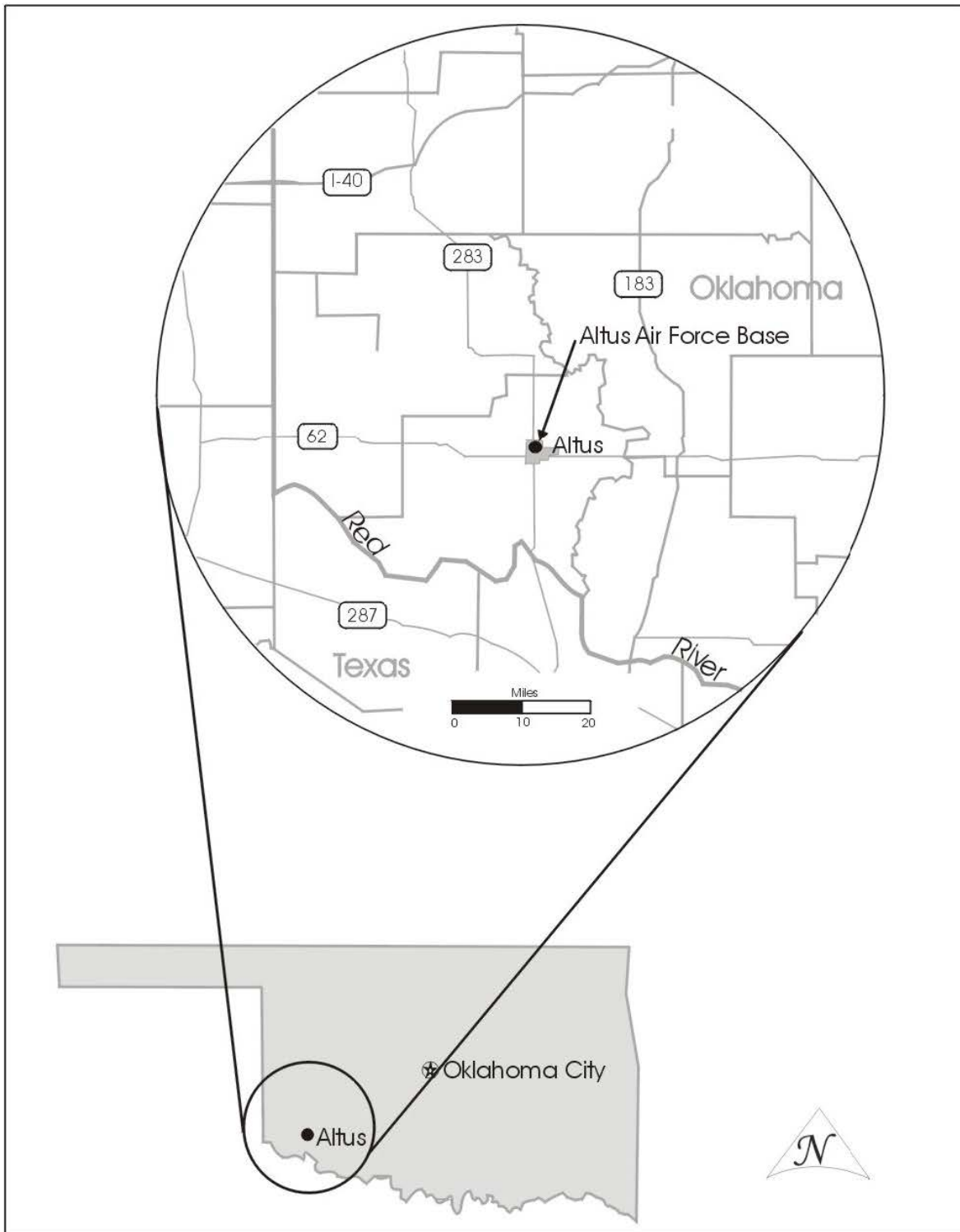


Figure 1-1 Regional Location Map

The president issued Executive Order (EO) 12898, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations, on February 11, 1994. In the EO, the president instructed each federal agency to make "achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The Federal Interagency Working Group on Environmental Justice defines the word "adverse" as "having a deleterious effect on human health or the environment that is significant, unacceptable, or above generally accepted norms." Based on analysis of impacts, a determination of impact will be made. If impacts would be significant, a determination of significance of impacts will be made. Accordingly, Environmental Justice will be addressed either in a FONSI (after determination on significance of impacts) based on an EA or in a Record of Decision based on an EIS.

The affected environment as presented in the *C-17 Program Changes, Altus Air Force Base, Oklahoma*, was used to establish the baseline conditions. The EA addresses peak impacts and expected long term impacts for the proposed or alternative actions.

Other actions or potential actions that may be concurrent with the proposed action could contribute to cumulative impacts. The environmental impacts of these other actions are addressed in this EA only in the context of potential cumulative impacts, if any. A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

1.4 APPLICABLE REGULATORY REQUIREMENTS

Regulatory requirements potentially applicable to the proposed action and alternatives are presented in Table 1-1.

1.5 INTRODUCTION TO THE ORGANIZATION OF THE DOCUMENT

This EA is organized into seven chapters. Chapter 1 contains a statement of the purpose of and need for action, the location of the proposed action, a statement of the decision to be made and identification of the decision maker, a summary of the scope of the environmental review, identification of applicable regulatory requirements, and a description of the organization of the EA. Chapter 2 contains a brief introduction, a description of the history of the formation of alternatives, describes the alternatives eliminated from further consideration, provides a detailed description of the proposed action, identifies other action alternatives, summarizes other actions announced for Altus AFB, provides a comparison matrix of environmental effects for all alternatives, identifies the preferred alternative, and identifies mitigation requirements, if required. Chapter 3 contains a general description of the biophysical resources that potentially

Table 1-1 Potentially Required Federal Permit, License, or Entitlement

Federal Permit, License, or Entitlement	Typical Activity, Facility, or Category of Persons Required to Obtain the Federal Permit, License, or Entitlement	Authority	Regulatory Agency
Title V permit under the CAA	<p>Sources subject to the Title V permit program include:</p> <p>Any major source:</p> <p>(1) A stationary source that emits or has the potential to emit 250 tpy of any pollutant (major source threshold can be lower in nonattainment areas),</p> <p>(2) A major source of air toxics regulated under Section 112 of Title III (sources that emit or have the potential to emit 10 tpy or more of a hazardous air pollutant or 25 tpy or more of any combination of hazardous air pollutants).</p> <p>Any “affected source” as defined in Title IV (acid rain) of the CAA.</p> <p>Any source subject to New Source Performance Standards under Section 111 of the CAA.</p> <p>Sources required to have new source or modification permits under Parts C [Prevention of Significant Deterioration (attainment areas)] or D [New Source Review (nonattainment areas)] of Title I of the CAA.</p> <p>Any source subject to standards, limitations, or other requirements under Section 112 of the CAA.</p> <p>Other sources designated by USEPA in the regulations.</p>	Title V of CAA, as amended by the 1990 CAA Amendments	USEPA; ODEQ
National Pollutant Discharge Elimination System permit	Discharge of pollutant from any point source into navigable waters of the United States.	§ 402 of CWA; 33 USC, §1342	USEPA; ODEQ
National Historic Preservation Act consultation	Excavation and/or removal of archaeological resources from public lands or Indian lands and carrying out activities associated with such excavation and/or removal.	National Historic Preservation Act, § 106	US Department of the Interior - National Park Service, Oklahoma Historical Society

Table 1-1, Continued

Federal Permit, License, or Entitlement	Typical Activity, Facility, or Category of Persons Required to Obtain the Federal Permit, License, or Entitlement	Authority	Regulatory Agency
Endangered Species Act § 7 consultation	Taking endangered or threatened wildlife species; engaging in certain commercial trade of endangered or threatened plants or removing such plants on property subject to federal jurisdiction.	§ 7 of Endangered Species Act, 16 USC § 1539; 50 CFR 17 Subparts C, D, F, and G	USFWS
CWA § 404 permit	Actions to reduce the risk of flood loss to minimize the impact of floods on human safety, health, and welfare; to restore and preserve the natural and beneficial values served by floodplains; actions to minimize destruction, loss, or degradation of wetlands; and to preserve and enhance the natural and beneficial values of wetlands.	EOs 11988 and 11990, § 404 of CWA, 33 USC § 1251	USACE, USFWS
CAA - Clean Air Act		USACE – United States Army Corps of Engineers	
CWA – Clean Water Act		USEPA – United States Environmental Protection Agency	
EO – Executive Orders		USFWS - United States Fish and Wildlife Service	
ODEQ - Oklahoma Department of Environmental Quality		USC - United States Code	
tpy - tons per year			

could be affected by the proposed action or alternatives. Chapter 4 is an analysis of the environmental consequences. Chapter 5 lists preparers of this document. Chapter 6 lists persons and agencies consulted in the preparation of this EA. Chapter 7 is a list of source documents relevant to the preparation of this EA.

Appendix A contains detailed air pollutant emission calculations. Appendix B contains documentation relevant to public notification and interagency and intergovernmental coordination for environmental planning and Appendix C includes a copy of the Notice of Availability published in the *Altus Times*.

1.6 PUBLIC INVOLVEMENT

On June 5, 2005, the Altus AFB Environmental Flight published a Notice of Availability in the *Altus Times* announcing an opportunity to comment on this EA. Concurrently, copies of the EA were sent to appropriate government organizations. Altus AFB received no public responses during the public comment period that concluded July 5, 2005.

Only the Oklahoma Department of Wildlife Conservation provided comment on the EA, indicating they concur with the contents of the document.

CHAPTER 2

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter is composed of seven sections: an introduction, a brief history of the formulation of alternatives, identification of alternatives eliminated from further consideration, a detailed description of the proposed action, a description of the no-action alternative, a detailed description of other action alternatives, and a cumulative impacts analysis.

2.2 HISTORY OF THE FORMULATION OF ALTERNATIVES

2.2.1 Alternative Selection Criteria

The factors considered when developing the alternatives were based on the requirements of Altus AFB associated with implementing the gate security improvements. The reconfiguration of the Main, South, and North Gates at Altus AFB would enable the gates at the installation to comply with the Entry Control Facilities Design Guide as much as possible. To allow for the gate security improvements, portions of the existing entry control facilities (ECFs) would require reconfiguration and existing roadways would be demolished. Therefore, selection criteria were based on the following considerations:

- Compliance of ECFs with the 2002 Entry Control Facilities Design Guide.
- Utilization of existing roadways and ECFs whenever possible.
- Compliance with the Base 2030 Plan.
- Demolition or renovation of ECFs not meeting the 2002 Entry Control Facilities Design Guide.
- Compliance with the 2004 Military Traffic Management Command (MTMC) Gate Security, Safety, and Capacity Traffic Engineering Study conducted by Gannett Fleming.

2.2.2 Development of Alternatives

Based on the selection criteria presented in Section 2.2.1, the following alternatives were developed:

- Modify and renovate existing facilities.
- Demolish old and construct new facilities.

2.3 IDENTIFICATION OF ALTERNATIVES ELIMINATED FROM CONSIDERATION

The development of alternatives for the gate security improvements on Altus AFB focused on meeting physical force protection requirements while moving vehicles through the gates in a more timely manner. The base planner began with the concept of modifying the existing facilities to meet all of the objectives defined for the project. Variations of the proposed concept were evaluated; however, due to cost constraints from construction of new roadways, the alternatives were restricted to the existing ECFs. As a result, alternatives associated with the construction of new roadways, or the relocation of exiting gates was eliminated from consideration by base planners and not carried forward in this analysis.

Additionally, during the development of the proposed action planners reviewed several configuration of the same proposed elements (i.e., new guardhouse, in-bound and out-bound lanes, etc.). All of the variations would use the same amount of space, in the same general area, and consist of the same elements. Therefore, there were no substantial differences between the variations and the proposed action that would require separate analyses as alternative actions.

2.4 DETAILED DESCRIPTION OF THE PROPOSED ACTION

The 97 AMW proposes to construct gate security improvements at three existing access gates on Altus AFB. The locations of these gates are depicted on Figure 2-1. More specifically, the proposed action would consist of improvements at the Main, South, and North Gates. The gate security improvements would be implemented in phases with only one gate under renovation at a time. Altus AFB is located in an area surrounded by a 100-year floodplain. Any access to the installation from the western, southern, or eastern sides of the base would require crossing the floodplain. Given the current configuration and location of Altus AFB, all of the alternatives considered in this effort for the Main Gate and South Gate involved some construction, demolition, or renovation activities in the floodplain. The specific activities for each gate are described in the following sections.

2.4.1 South Gate

Currently, the South Gate is operational between the hours of 0600 and 1800, 7 days per week. The gate is limited to a single in-bound lane and is not configured to allow for outbound traffic flow. During the peak morning conditions the gate experiences approximately 160 vehicles an hour with only two Security Forces personnel. Under current conditions some of the commercial vehicles accessing the base via the South Gate are delayed while waiting for base escorts. Implementation of the proposed action would create additional in-bound lanes, a vehicle inspection station, a new guardhouse and canopy, a storm shelter, an over-watch area, better signage, additional space for maneuvering commercial trucks, new vehicle turnaround areas before and after guardhouse, and allow for traffic to leave the installation.

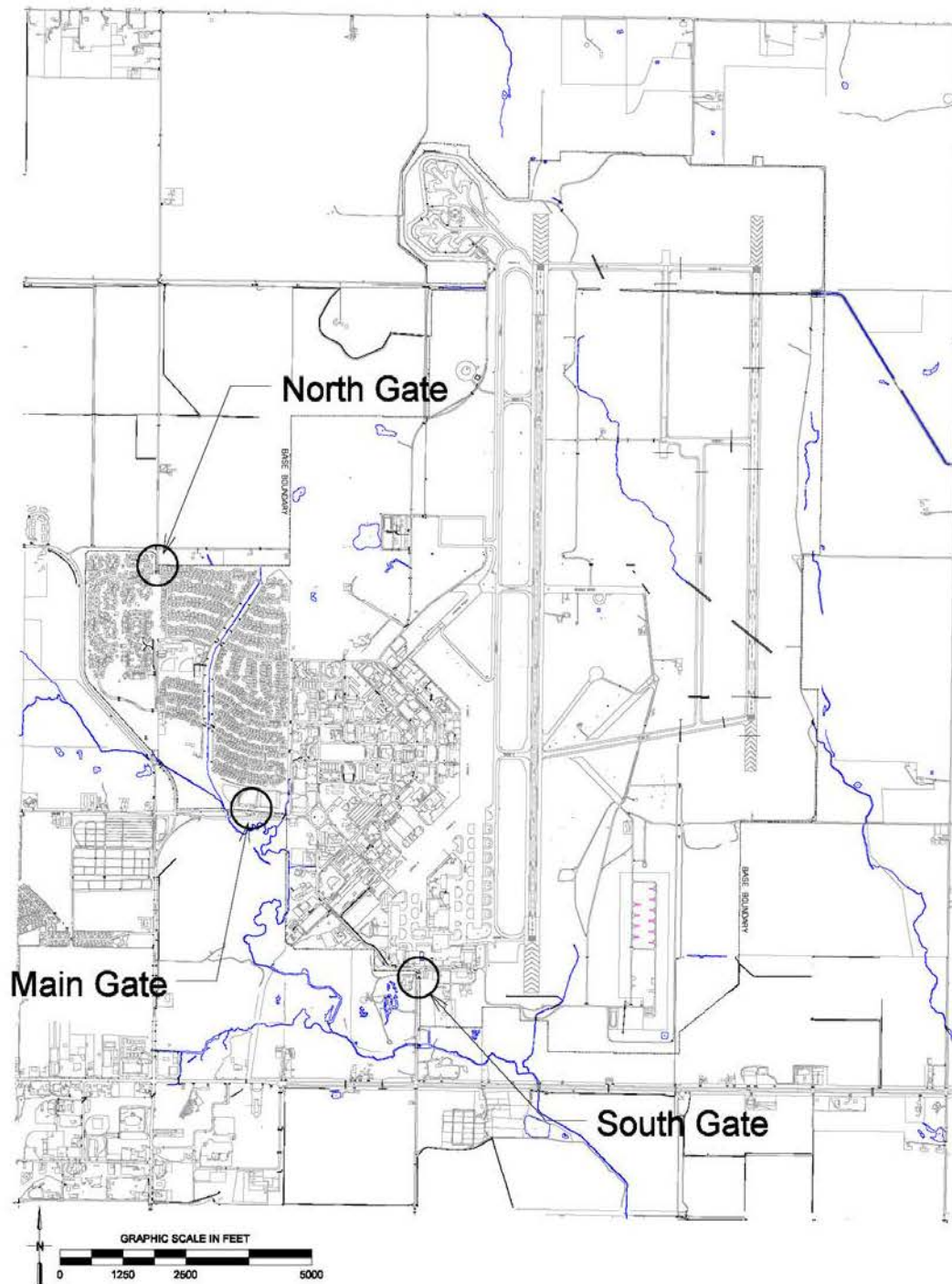


Figure 2-1 Gate Locations, Altus Air Force Base, Oklahoma

As part of the proposed action some demolition of existing facilities and roadways/parking areas and the construction of new facilities and roadways/parking areas would be required. Table 2-1 provides the specific amount of demolition and construction areas for the proposed action.

Table 2-1 Demolition and Construction Activities for the South Gate, Altus AFB

	Roadways/Parking Areas		Facilities	
	Square Feet	Square Yards	Square Feet	Square Yards
Proposed (Construction)	93,158	10,351	774	86
Existing (Demolition)	27,408	3,045	225	25
Total Gain (Loss)	65,750	7,306	549	61

In order to accommodate the security requirements at the South Gate the Air Force may be required to purchase a small amount of the adjoining land (i.e., less than two acres). Most of the existing facilities at the South Gate are located outside the existing 100-year floodplain. All of the proposed facilities would be raised one to two feet to ensure that the facilities are above the floodplain elevation. Localized drainage systems would be designed to accommodate stormwater runoff. The layout of the South Gate security improvements is depicted on Figure 2-2.

2.4.2 Main Gate

The Main Gate at Altus AFB is operational 24 hours per day seven days a week, and consists of two in-bound lanes with two Security Forces personnel (one person per lane) checking identification and two out-bound lanes. Three individuals are currently assigned to work the existing guardhouse on a daily basis. The gate currently handles a volume of approximately 660 vehicles per hour between 0630 and 0730 (peak morning hours) and approximately 81 percent of the installation's in-bound traffic. Under the proposed action the Air Force would construct three in-bound lanes, new guardhouse and canopy, a storm shelter, separate vehicle inspection area and canopy, new visitors' center and parking area, an over-watch area and new vehicle turnaround areas before and after guardhouse. Implementation of the proposed action would also involve the installation of better signage, crash protection devices, cameras, improved lighting, and other security equipment (i.e., pop up barriers, card swiping technology, pike-pass system, etc.). Most of the existing facilities at the Main Gate are located inside the existing 100-year floodplain. All of the proposed facilities would be raised one to two feet to ensure that the facilities are above the floodplain elevation. Localized drainage systems would be designed to accommodate stormwater runoff. The layout of the Main Gate security improvements is depicted on Figure 2-3.

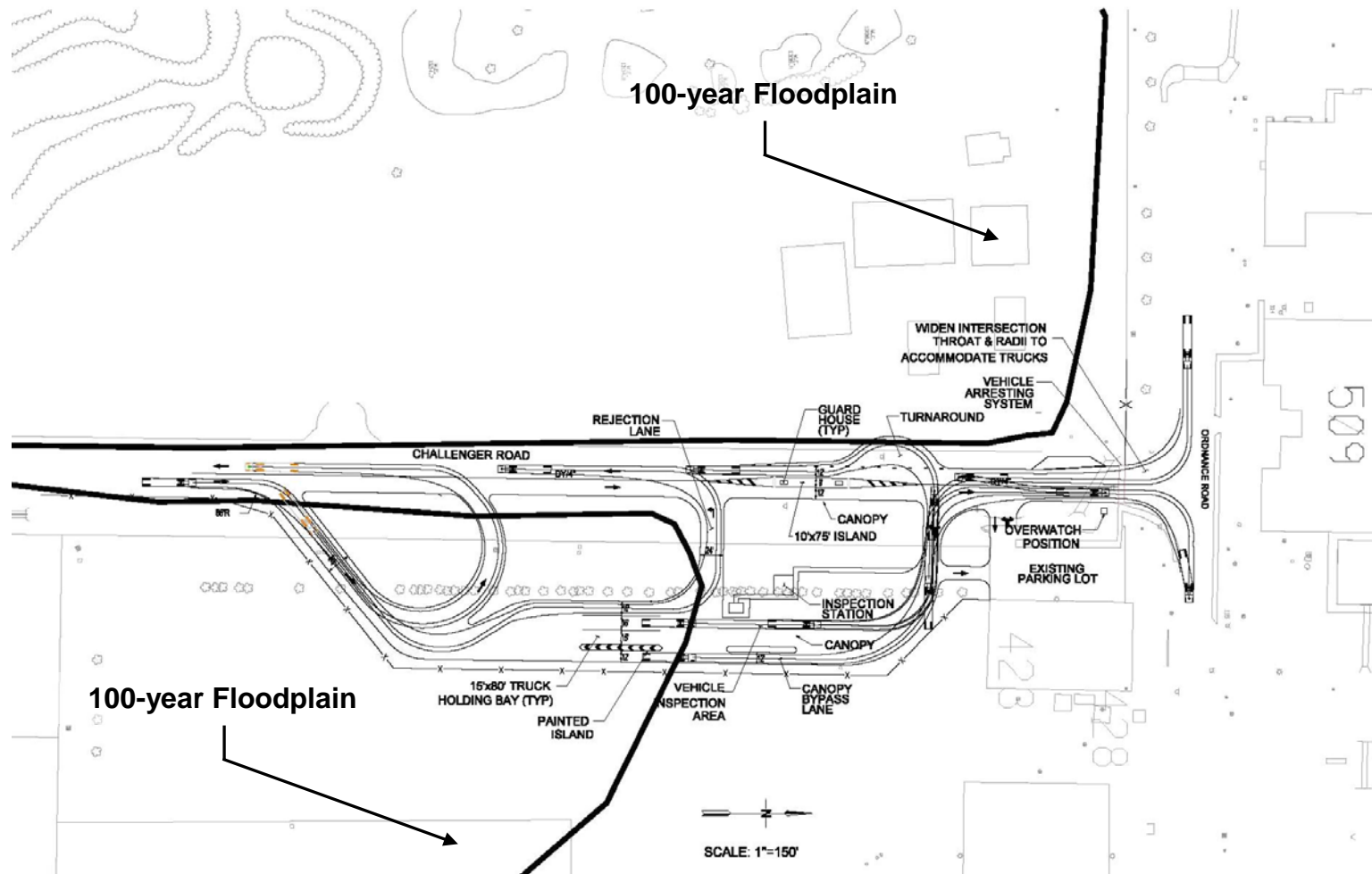


Figure 2-2 South Gate Improvements, Altus Air Force Base, Oklahoma

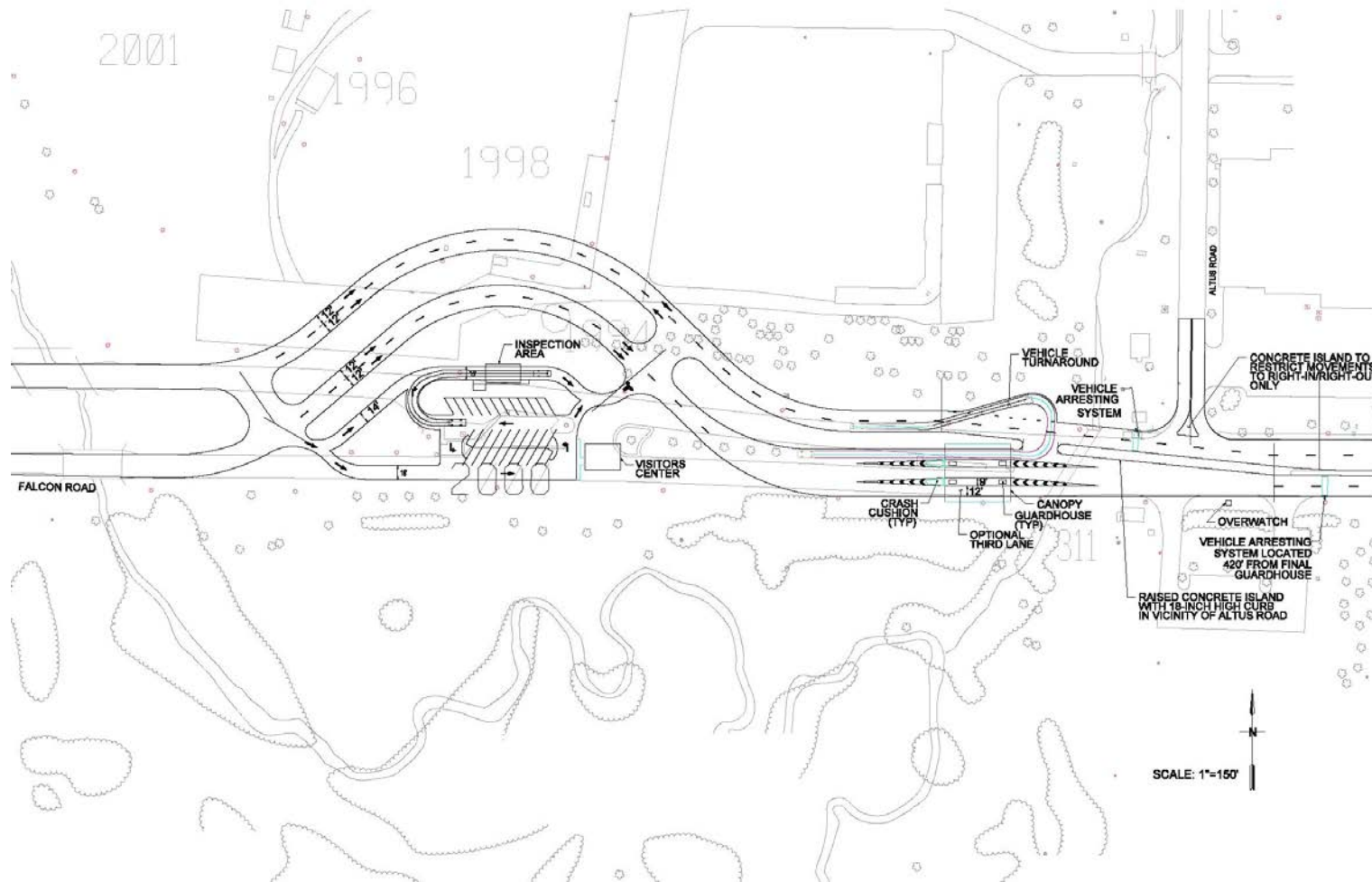


Figure 2-3 Main Gate Improvements, Altus Air Force Base, Oklahoma

As part of the proposed action some demolition of existing facilities and roadways/parking areas and the construction of new facilities and roadways/parking areas would be required. Table 2-2 provides the specific amount of demolition and construction areas for the proposed action.

Table 2-2 Demolition and Construction Activities for the Main Gate, Altus AFB

	Roadways/Parking Areas		Facilities	
	Square Feet	Square Yards	Square Feet	Square Yards
Proposed (Construction)	105,431	11,715	1,317	146
Existing (Demolition)	100,913	11,213	225	25
Total Gain (Loss)	4,518	502	1,092	121

2.4.3 North Gate

Currently, the North Gate is operational between the hours of 0600 and 1800, 7 days per week. The gate consists of one in-bound and one out-bound lane and guardhouse, and is manned with only one Security Forces person. No commercial vehicles and/or non-housing vehicles can access or exit the installation through this gate. Currently there is an open drainage culvert associated with the North Gate that has been identified as a potential unsecured entry point for foot traffic. As part of the proposed action the Air Force would modify the existing configuration of the North Gate by adding a new guardhouse, speed control area and storm shelter, widening the roadway, and redesigning the storm culvert to secure the area. In order to accommodate the security requirements at this gate the Air Force may be required to purchase a small amount of the adjoining land (i.e., less than two acres). The layout of the North Gate security improvements is depicted on Figure 2-4.

As part of the proposed action some demolition of existing facilities and roadways/parking areas and the construction of new facilities and roadways/parking areas would be required. Table 2-3 provides the specific amount of demolition and construction areas for the proposed action.

Table 2-3 Demolition and Construction Activities for the North Gate, Altus AFB

	Roadways/Parking Areas		Facilities	
	Square Feet	Square Yards	Square Feet	Square Yards
Proposed (Construction)	7,200	800	450	50
Existing (Demolition)	3,240	360	225	25
Total Gain (Loss)	3,960	440	225	25

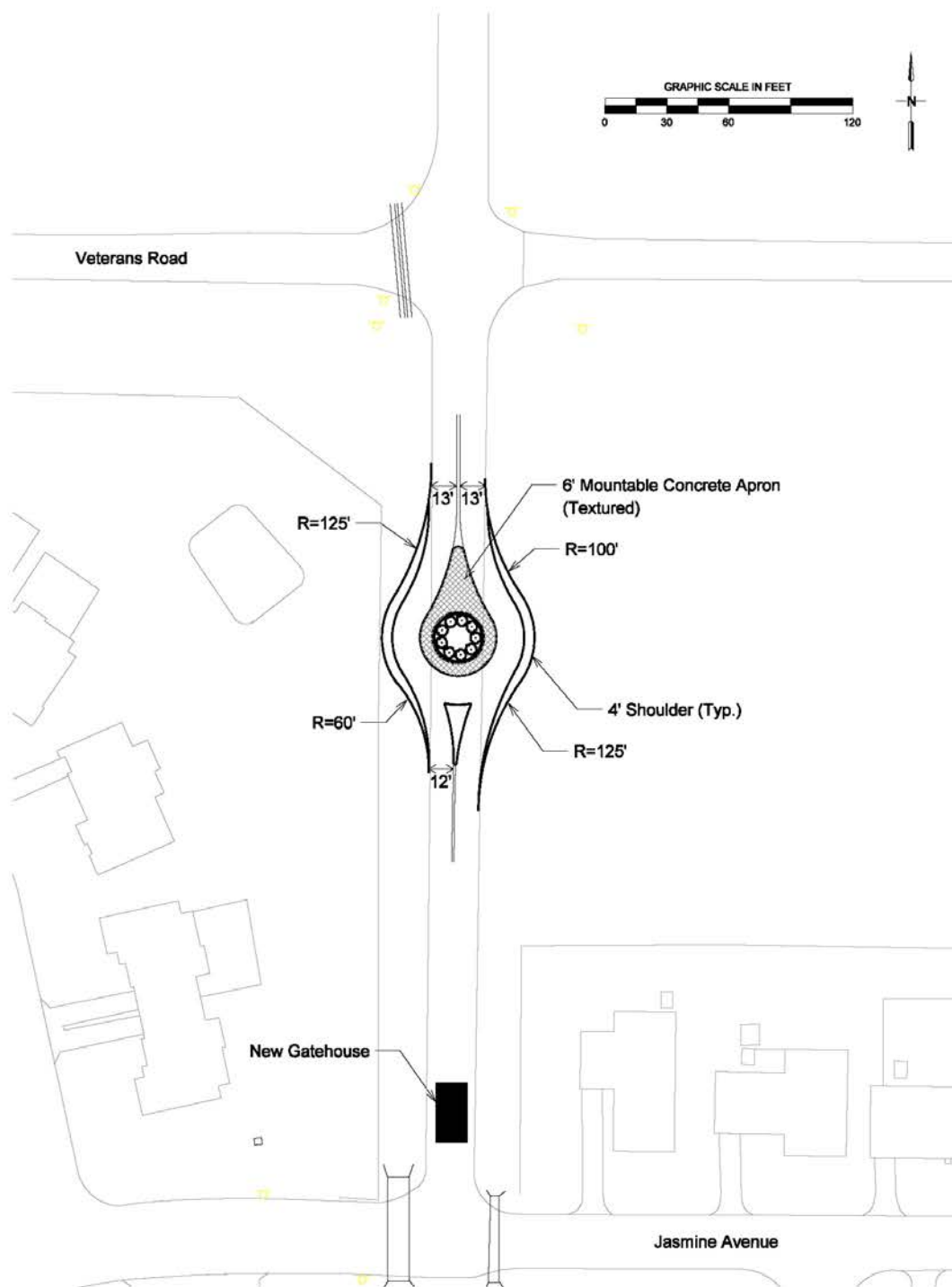


Figure 2-4 North Gate Improvements, Altus Air Force Base, Oklahoma

2.4.4 Interim Measures

During the construction and renovation phases of this effort transportation at each gate would be impacted by the activities. Several interim measures have been identified by the installation in order to minimize the disruption to the flow of traffic on and off base. One of the options could be to utilize two temporary gates constructed for previous efforts on Altus AFB. One of the gates is located on the northwest side of the base and the other on the southeast side. Both of these gates are accessed by a dirt road and would require some road improvements prior to use. The use of these two gates would be temporary and they would be closed once the project was completed. Other interim measures may include one-way directional traffic during morning and afternoon peak travel times, and/or diverting traffic to the other two gates while work is proceed on one gate.

2.5 DESCRIPTION OF THE NO-ACTION ALTERNATIVE

Under the no-action alternative Altus AFB would not implement any of the actions proposed in Section 2.4. The current gates would remain as they currently exist, and no security improvements would be made.

2.6 DETAILED DESCRIPTION OF OTHER ACTION ALTERNATIVES

The purpose of the proposed action is to construct gate security improvements at the Main, North, and South Gates at Altus AFB. Alternate locations for the gate security improvements would not correct deficiencies in the current configuration of the gates. Therefore, there are no alternatives to the proposed action as detailed in Section 2.4.

2.7 CUMULATIVE IMPACT ANALYSIS

Cumulative impacts to environmental resources result from the incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the region of influence (ROI). Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, or local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the near future is required. Specific projects are described in the sections below.

2.7.1 Military Family Housing Privatization

Altus AFB has plans to privatize military family housing (MFH) at the installation by entering into a real estate transaction with a private developer to plan, design, develop, demolish, construct, renovate, replace, own, operate, maintain and manage the MFH for military personnel for a period of 50 years. Based on the condition, size, and functionality assessments of the existing 965 units, 142 units require demolition and replacement, 401 units require whole-house renovation, 183 units require new storm shelters, and 239 excess units require demolition. Housing proposed for privatization includes the

Bicentennial (86 units), Great Plains (184 units) and Capehart (700 units) housing areas. All of the utility lines (water, sewer, and gas mains and laterals) in the housing areas would also be conveyed to the privatization contractor. Overall, privatization would include conveyance of all MFH units to a private developer for a period of 50 years beginning in FY 05. The government would retain ownership of the underlying land and lease it to the private developer.

2.7.2 Construct Base Civil Engineer Complex

In addition to the current project, Altus AFB has announced the plans for the construction of a Base Civil Engineer Complex (Project Number AGGN 97-3014). The Civil Engineer (CE) functions now occupy 19 facilities at the installation. Several of the facilities are early 1950s wooden frame construction and have deteriorated beyond economical repair. Problems included poor lighting, no insulation, inefficient mechanical systems, and lack of fire protection systems. The lack of adequate space and use of substandard facilities, coupled with the separation of related functions, prohibits effective utilization of staff hours, delays to management decisions, work force inefficiency, and degrades prompt completion of engineering operations action. Accordingly, Altus AFB has proposed the construction of a complex to develop, program, and execute requirements to maintain, repair, operate, and construct base facilities, pavements, and utility systems in support of the base mission and individual and organizational customers. The activities include the demolition of 10 buildings (Buildings 30, 347, 355, 356, 357, 359, 362, 365, 373, and 447) totaling 81,100 square feet and the construction of 5 buildings (Administrative Facility, Pavement and Grounds Shop, Maintenance Shops, Covered High Storage Bay, and Covered Low Storage Bay) totaling 102,810 square feet. Construction consists of concrete foundations and floor slabs, steel frames, concrete aggregate pre-cast walls, standing seam metal roof, and utilities. A summary of the projects is provided on Table 2-4 and the location of the Base CE Complex is depicted on Figure 2-5.

Table 2-4 Base Civil Engineer Facility Requirements, Proposed Action

Project Name	Requirement	Description
Construction Projects		
Administration Facility	16,550 sf	Conference Room, Storage, Central File Storage, Mechanical Room, Toilets, Training Room, Drafting Room/Vault, Technical Publication Library, and Automatic Data Processing Equipment
Pavement and Grounds Shop	6,200 sf	Tool and vehicle storage areas along with shop space for maintenance and servicing equipment and vehicles. The new area is to include a wash rack for cleaning equipment and vehicles.
Maintenance Shops	25,450 sf	Collocated shops to include: Electrical, Utilities, Wood Shop, Metal Shop, Paint Shop/Storage and Environmental Monitoring and Control Systems along with Supervisors offices/break areas.
Covered High Bay Storage	22,100 sf	Material Control, Contractor Operated Civil Engineer Supply Store, and Self-Help warehouse and offices.
Covered Low Bay Storage Shed	32,500 sf	Vehicle parking area and covered, locked storage for hazardous materials.

**Table 2-4 Base Civil Engineer Facility Requirements, Proposed Action
(Continued)**

Project Name	Requirement	Description
Demolition Projects		
Building 30	1,900 sf	Metal, Built in 1978
Building 309	1,200 sf	Concrete, Built in 1956
Building 347	6,650 sf	Wood, Built in 1956
Building 355	1,000 sf	Concrete, Built in 1961
Building 356	12,100 sf	Wood, Built in 1953
Building 357	7,000 sf	Wood, Built in 1956
Building 359	1,250 sf	Wood, Built in 1965
Building 362	9,200 sf	Wood, Built in 1954
Building 365	15,000 sf	Metal, Built in 1954

sf = square feet

2.7.3 Digital Airport Surveillance Radar Facility

The Federal Aviation Administration (FAA) has proposed the installation and operation of a Digital Airport Surveillance Radar (DASR) system at Altus AFB. DASR is a new terminal air traffic control radar system that replaces current analog systems with new digital technology. The Air Force Electronics Systems Center and the FAA are in the process of procuring DASR systems to upgrade existing radar facilities for DoD and civilian airfields. The DASR system detects aircraft position and weather conditions in the vicinity of civilian and military airfields. The government nomenclature for this radar is the ASR-11.

The ASR-11 system consists of two electronic subsystems: a primary surveillance radar and a secondary surveillance radar, sometimes called the beacon. The primary surveillance radar uses a continually rotating antenna mounted on a tower to transmit electromagnetic waves, which reflect or backscatter from the surface of aircraft up to 60 miles from the radar. The radar system measures the time required for a radar echo to return and the direction of the signal. From this data the system can then measure the distance of the aircraft from the radar antenna and the azimuth or direction of the aircraft from the antenna. The primary radar also provides data on six levels of rainfall intensity. The primary radar operates in the range of 2,700 to 2,900 megahertz (MHz). The transmitter generates a peak effective power of 25 kilowatt (kW) and an average power of 2.1 kW. Average power density of the ASR-11 signal decreases with distance from the antenna. At distances of more than 43 feet from the antenna, the power density of the ASR-11 signal would fall below the maximum permissible exposure levels established by the Federal Communications Commission.

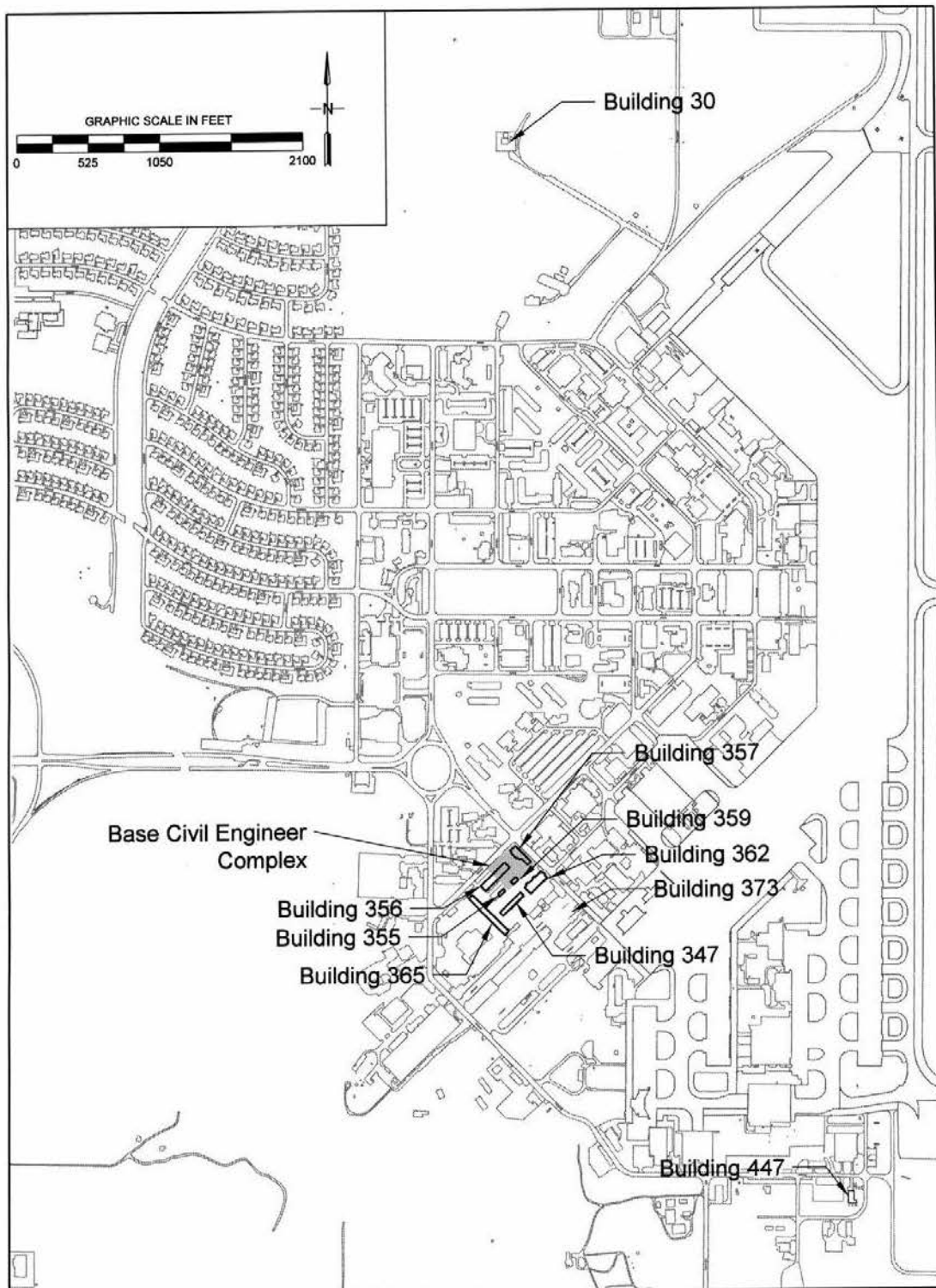


Figure 2-5 Base Civil Engineer Complex, Altus Air Force Base, Oklahoma

The secondary radar, also called the monopulse secondary surveillance radar, uses a second radar antenna attached to the top of the primary radar antenna to transmit and receive area aircraft data for barometric altitude, identification code, and emergency conditions. Military and commercial aircraft have transmitters that automatically respond to a signal from the secondary radar by reporting an identification code and altitude. The air traffic control uses this system to verify the location of aircraft within a 120-mile radius of the radar site. The beacon radar also provides rapid identification of aircraft in distress. The secondary radar operates in the range of 1,030 to 1,090 MHz. Transmitting power ranges from 160 to 1,500 watts.

The total ASR-11 system also includes the following facilities: an antenna tower, an electronic equipment shelter/building with heating, ventilation and air conditioning, a power distribution system, an uninterruptible power supply, a back-up emergency engine/generator set, fire detection, security, and cabling to connect the radar to the local Radar Approach Control center. Telephone and power lines would also be provided to the site. The tower would be from 17 to 87 feet in height, depending upon local surrounding obstructions to the radar signal such as trees, buildings and local terrain. The radar antenna and lightning masts on the top of the tower add an additional 20 feet to the total height of the structure. An optional radome would extend approximately 10 feet above the antenna for a total structure height of 47 to 107 feet. The typical ASR-11 site is 140 by 140 feet plus a maintenance access road.

2.7.4 C-17 Program Changes

The Air Force has plans to add up to eight C-17 aircraft at Altus AFB. To create room for the C-17s, all C-5 aircraft, associated manpower, support, and equipment would be transferred from Altus AFB by FY 07. Existing C-5 facilities would be converted to C-17 use and new C-17 facilities would be constructed. The proposed beddown of additional C-17 aircraft would increase the average daily student loads (ADSLs) and have a corresponding increase in manpower to support C-17 activities. These increases would be offset through the elimination of most C-5 training by FY 08. The maximum ADSL would occur between FY 05 and FY 07, prior to the completion of the transition of C-5 aircraft from Altus AFB. In FY 08, the only C-5 training to remain at Altus AFB would be a Basic Flight Engineer Course (no associated flying activities).

To support the beddown of additional C-17 aircraft, the renovation and construction of facilities would be needed to support the training mission at Altus AFB. The departure of the C-5 aircraft would allow for the conversion of existing facilities for C-17 use. Summaries of the proposed facility actions are presented in Table 2-5. Locations of the proposed facilities are depicted on Figure 2-6.

Table 2-5 Facilities Requirements, Proposed Action

Project Name	FY	Requirement	Description
C-17 Simulator Facility Building	2003	2,500 sf	Remodel Existing C-141 Bay
Transportation Maintenance Bay	2004	500 sf	Increase from 12 to 14 loaders
Extension			
Repair Blast Fence	2005	750 LF	Replace 14-foot fence with 20-foot fence
Taxiway/Apron Repair	2005		
Expand Flight Kitchen	2004	1,600 sf	Addition to southwest corner of Building 185
Renovation of Building 164	2007	7,700 sf	Renovation to support C-17 squadron
Building 89 Remodel	2006	5,000 sf	Remodel existing C-141 and KC-135 bays
Sheet Metal Fabrication Building	2007	5,100 sf	Addition/Alteration of Hangar 157
Add/Alter KC-135 AMU	2007	7,120 sf	Supports C-17 refueling operations
Repair Assault Landing Strip	2003	35,150 sy	Seal existing pavement
Expand Computer Planning Room, Building 164	2005	1,245 sf	Expand into existing briefing rooms
Construct Visitors Quarters	2007	65,000 sf	100 person
Construct Fuels Complex	2007	7,250 sf	Consolidates 4 separate buildings
Construct Air/Land Operations	2007	5,000 sf	Storage
Storage and Parking		15,000 sy	Parking
Construct Single Bay Hangar and AMU	2010	110,000 sf	Consolidated AMU for KC-135s and C-17s
		75,000 sf	
Repair Outside Runway	2005	170,000 sy	Perform runway repairs and improvements
Construct AMU	2007	75,000 sf	Consolidated AMU for KC-135s and C-17s

AMU = Aircraft Maintenance Unit (facility to support maintenance technicians preparing aircraft for missions).

FY = Fiscal Year

sf = square feet,

LF = linear feet,

sy = square yards,

2.8 COMPARISON MATRIX OF ENVIRONMENTAL EFFECTS OF ALL ALTERNATIVES

Table 2-6 summarizes the impacts of the proposed and alternative actions. No significant impacts are expected from either the proposed or alternative actions. The impacts for the no-action alternative are the same as baseline conditions.

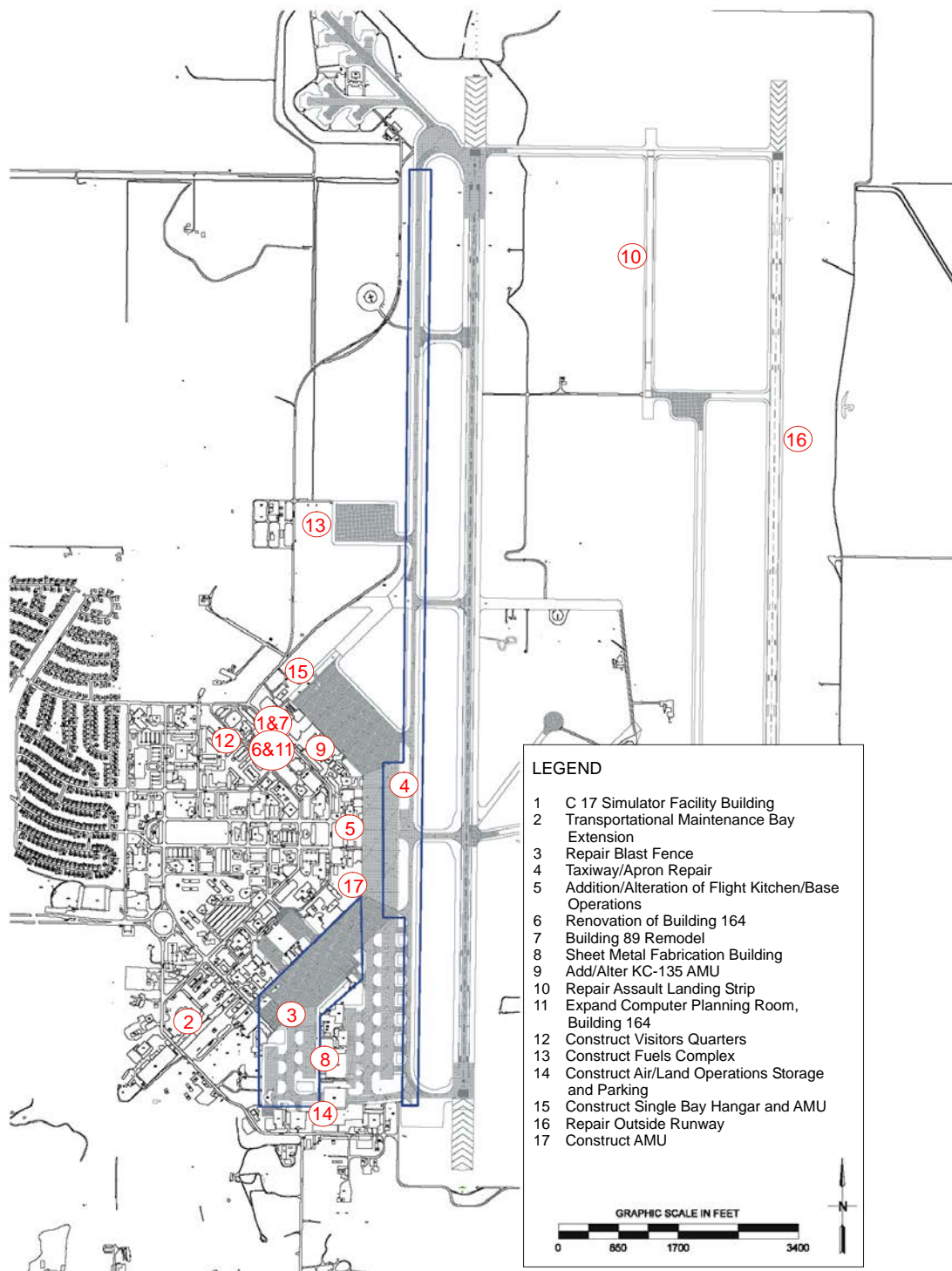


Figure 2-6 Facilities Requirements, C-17 Program Changes

Table 2-6 Summary of Environmental Effects

Resource	Proposed Action	No-action Alternative
Noise	Sensitive receptors on, or adjacent to Altus AFB, would not be impacted. Cumulative impacts to sensitive receptors for the proposed action and ongoing actions would not occur.	Same as for baseline conditions as presented in Section 3.3.1. Cumulative impacts to sensitive receptors for the no-action alternative action and ongoing actions would not occur.
Air Quality	Emissions of all pollutants would be less than 250 tpy; therefore, the proposed action would not be considered regionally significant. The maximum annual increase in emissions for any pollutant as compared to baseline emissions would be less than 0.18 percent for PM ₁₀ . The cumulative emissions of all pollutants would be less than 250 tpy; therefore, the proposed action would not be considered regionally significant.	Same as for baseline conditions as presented in Section 3.3.2. The cumulative emissions of all pollutants would be less than 250 tpy; therefore, the proposed action would not be considered regionally significant.
Earth Resources	Limited soil disturbing activities from gate construction and demolition activities. All activities would occur in previously disturbed areas. Cumulative impacts to earth resources from the proposed and ongoing actions are not expected.	Same as for baseline conditions as presented in Section 3.3.3. Cumulative impacts to earth resources from the no-action alternative and ongoing actions are not expected.
Water Resources	The demolition of old facilities and the construction of the gate improvements would add 1.76 acres of impervious (impenetrable) cover. The net increase is expected to have a minimal impact on the total amount of impervious cover (0.24 percent) and on the total volume of stormwater runoff. The construction and addition projects at Altus AFB are expected to cumulatively increase impervious surface cover.	Same as for baseline conditions as presented in Section 3.3.4. Cumulative impacts to water resources from the no-action alternative and ongoing actions are not expected.
Hazardous Materials and Hazardous Waste	Hazardous materials would be consumed during the demolition and construction project. Hazardous waste would not be generated from demolition and construction activities. The new facilities would not use, manage, or store hazardous materials or generate hazardous waste. Lead-based paint and asbestos, if encountered, would be managed and disposed according to Altus AFB's <i>Lead-Based Paint Management Plan</i> , <i>Asbestos Management Plan</i> , and the <i>Asbestos Operations Plan</i> . Cumulative impacts to hazardous materials, hazardous waste, asbestos, and lead-based paint are not expected from the proposed or ongoing actions.	Same as for baseline conditions as presented in Section 3.3.5. Cumulative impacts to hazardous materials, hazardous waste, asbestos, and lead-based paint are not expected from the no-action alternative or ongoing actions.

Table 2-6 Summary of Environmental Effects (Continued)

Resource	Proposed Action	No-action Alternative
Biological Resources	<p>Impacts to vegetative resources would not occur. No impacts to wildlife resources would occur. The proposed action would have no impact on federal and state listed endangered and threatened species as they are not known to occur on or near Altus AFB. The construction activities associated with the proposed action would not occur in wetland areas. Both the Main Gate and South Gate are located within or adjacent to the 100-year floodplain. However, the proposed facilities would be elevated to an level outside the floodplain. There would be no change to the capacity of the floodplain nor would the effort diminish the quality of the stormwater runoff.</p> <p>The proposed and ongoing actions at Altus AFB would not contribute to cumulative impacts on biological resources.</p>	<p>Same as for baseline conditions as presented in Section 3.3.6.</p> <p>Cumulative impacts to biological resources from the no-action alternative and ongoing actions are not expected.</p>
Utilities and Infrastructure	<p>There would be no change in the number of individuals working or living on Altus AFB. Therefore, there would be no measurable change in the amount electricity, natural gas, or potable water used on the installation. Additionally there would be no increase in the amount of sanitary waste generated as a result of the proposed action. The amount of impervious cover on the installation would increase by approximately 1.76 acres. Compared to the 740 existing acres of impervious cover, this increase would not affect the amount of stormwater generated on base. The construction and demolition activities at each gate would create a short-term impact to individuals accessing and leaving the installation. However, these impacts would be offset by the interim measures defined in the proposed action and would be temporary in duration. Once construction is complete, the traffic flow onto and off of the base would be improved with shorter queuing times and more efficient movement of vehicles.</p> <p>There would be no cumulative impact to utilities and infrastructure resulting from the implementation of the proposed action and ongoing actions.</p>	<p>Same as for baseline conditions as presented in Section 3.3.7.</p> <p>Cumulative impacts to cultural resources from the no-action alternative and ongoing actions are not expected.</p>
Socioeconomics	<p>There would be no measurable impact on the local or regional economy as a result of the proposed action. There would be no impact on the number of individuals living in the region, economy, housing market, or regional education or schools. The amount of money generated by the construction and demolition activities is consistent with recent efforts on Altus AFB. Therefore, there would not be any impacts on socioeconomics as a result of the proposed action.</p> <p>There would be no cumulative impact to socioeconomics resulting from the implementation of the proposed action and ongoing actions.</p>	<p>Same as for baseline conditions as presented in Section 3.3.8.</p> <p>Cumulative impacts to transportation from the no-action alternative and ongoing actions are not expected.</p>

AFB – Air Force Base

tpy - tons per year

PM₁₀ - particulate matter equal to or less than 10 microns in diameter.

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CHAPTER 3

AFFECTED ENVIRONMENT

The affected environment is the baseline against which potential impacts caused by the proposed action are assessed. This chapter focuses on the human environment that has the potential to be affected by the proposed land acquisition for airdrop training use. As stated in 40 CFR §1508.14, the human environment potentially affected is interpreted comprehensively to include the natural and physical resources and the relationship of people with those resources. The approach to defining the environmental baseline was to first identify potential issues and concerns of the proposed action, as discussed in Section 4.0. From this information, the relevant resources are described.

3.1 INTRODUCTION

This chapter provides baseline data for the man-made and natural environmental elements that could potentially be affected by the proposed action and alternatives at Altus AFB. Information is presented in this section to the level of detail necessary to support the analysis of potential impacts in Chapter 4, Environmental Consequences.

3.2 INSTALLATION LOCATION, HISTORY, AND CURRENT MISSION

Altus AFB is located in Jackson County in southwestern Oklahoma, 140 miles southwest of Oklahoma City, Oklahoma, and 60 miles west of Lawton, Oklahoma. Altus AFB, consisting of approximately 3,875 acres is located on the eastern edge of the city of Altus, Oklahoma.

The evolution of Altus AFB began during World War II when the base was established by the War Department on June 17, 1942. Designated as Altus Army Air Field, the installation served as an advanced flying training school for twin-engine aircraft during the war. In May 1945, the US Army deactivated the base. In September 1948, the War Assets Department turned over the installation to the city of Altus and it became the Altus Municipal Airport. In January 1953, the base was reactivated and eventually placed under the Strategic Air Command (SAC), which assumed full control in June 1954. SAC flew B-47s and KC-97s until 1958 when they were replaced by B-52s and KC-135s [United States Air Force (USAF) 2002].

In July 1968, control of Altus AFB was transferred to the Military Airlift Command (MAC). The KC-135s continued their air-refueling mission at the base through tenant units. In May 1969, MAC transferred the 433rd Military Airlift Wing (433 MAW) from Tinker AFB, Oklahoma, to Altus AFB. The 433 MAW's mission was to train C-141 and C-5 aircrews. MAC was redesignated as AMC in June 1992. The 443 MAW and the 340th Air Refueling Wing merged to form the 97 AMW and was incorporated into AMC. On

July 1, 1993, the 97 AMW was realigned under AETC, with responsibility for formal aircrew training in C-5, C-141, and KC-135 aircraft (USAF 2002).

The 97 AMW's mission is to operate AETC's strategic airlift and aerial refueling flying training schools, to provide airlift and air refueling support for the Joint Chiefs of Staff Single Integrated Operations Plans, to maintain and support C-5, KC-135, and C-17 aircraft, and to serve as the aerial port of embarkation for the United States Army at Fort Sill, Oklahoma (USAF 2002).

3.3 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.3.1 Noise

Noise is usually defined as unwanted sound, a definition that includes both the psychological and physical nature of the sound as defined by the American Industrial Hygiene Association (AIHA, 1986). Under certain conditions, noise may cause hearing loss, interfere with human activities at home and work, and may affect human health and well-being in various ways.

Sound pressure level (L_p) can vary over an extremely large range of amplitudes. The decibel (dB) is the accepted standard unit for measuring the amplitude of sound because it accounts for the large variations in amplitude and reflects the way people perceive changes in sound amplitude. Sound levels are easily measured, but the variability is subjective and physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation by subjective terms such as "loudness" or "noisiness." Table 3-1 presents the subjective effect of changes in sound pressure level.

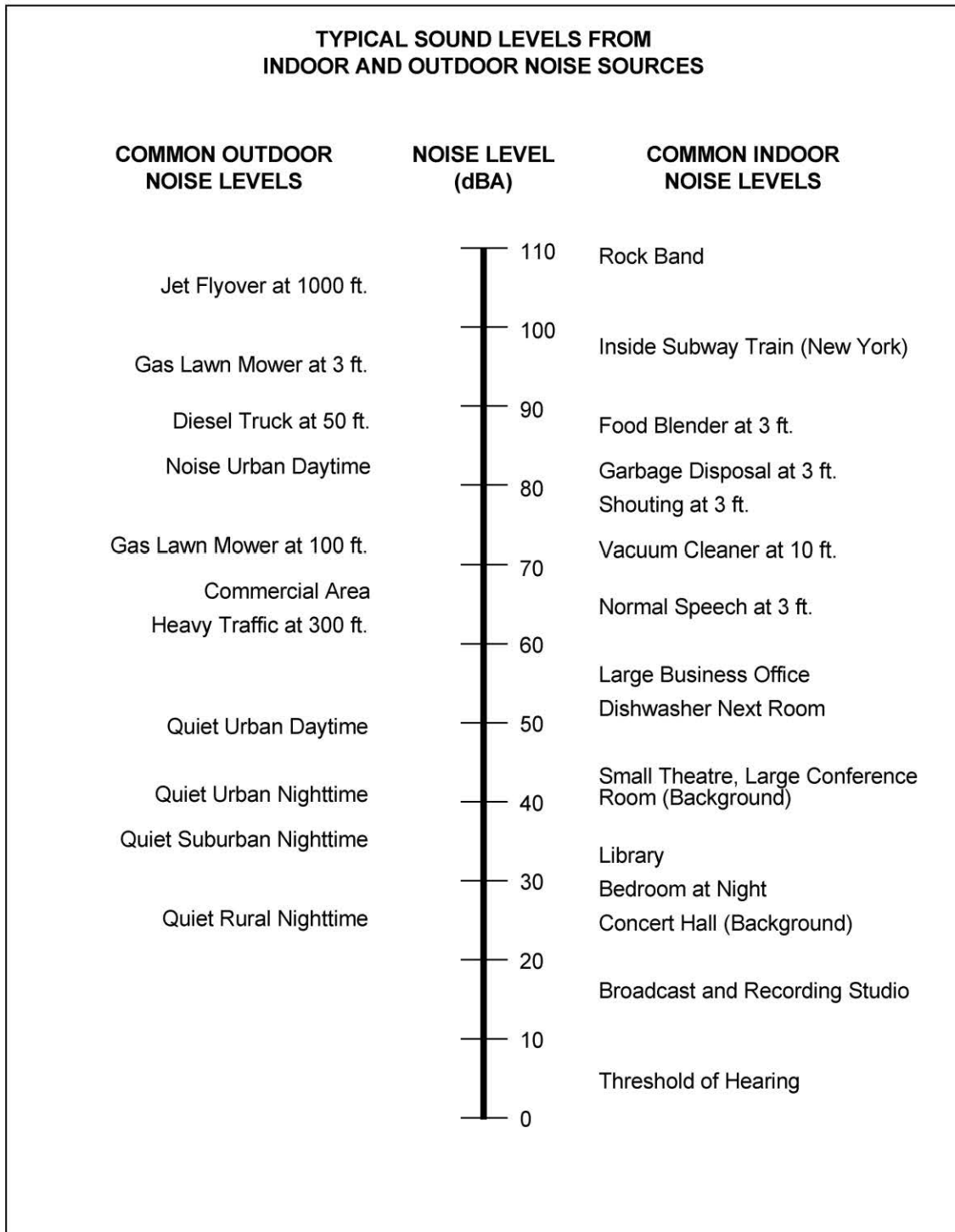
Table 3-1 Subjective Effects of Changes in Sound Pressure Level

Change in Sound Level (dB)	Change in Power		Change in Apparent Loudness
	Decrease	Increase	
3	1/2	2	Just perceptible
5	1/3	3	Clearly noticeable
10	1/10	10	Half or twice as loud
20	1/100	100	Much quieter or louder

dB – decibel

Source: Bies and Hansen 1988

Different sounds contain different frequencies. When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. The term "A-weighted" refers to a filtering of the noise signal, which emphasizes frequencies in the middle of the audible spectrum and de-emphasizes low and high frequencies in a manner corresponding to the way the human ear perceives sound. This filtering network was established by the American National Standards Institute (ANSI 1983). The A-weighted noise level has been found to correlate well with people's judgments of the noisiness of different sounds and has been used for many years as a measure of community noise. Figure 3-1 shows the typical A-weighted sound levels for various sources.



Source: Harris 1991

ft – foot, dBA – A-weighted sound level, measured in decibels

Figure 3-1 Typical A-weighted Sound Levels

Community noise levels usually change continuously during the day. However, community noise exhibits a daily, weekly, and yearly pattern. Several descriptors have been developed to compare noise levels over different time periods. One descriptor is the equivalent sound level (L_{eq}). The L_{eq} is the equivalent steady-state A-weighted sound level that would contain the same acoustical energy as the time-varying A-weighted sound level during the same time interval.

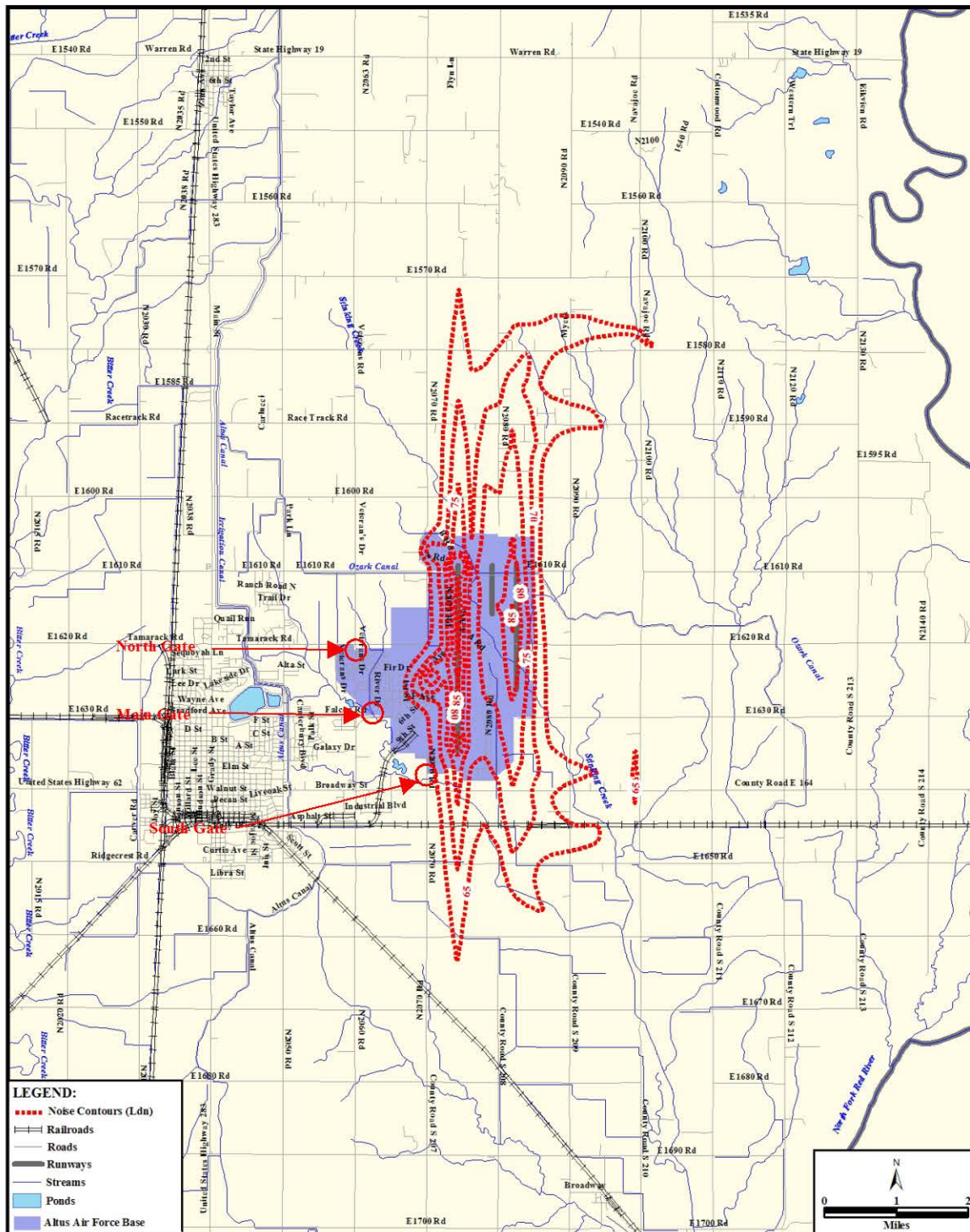
Another descriptor, the day-night average sound level (L_{dn}), was developed to evaluate the total daily community noise environment. L_{dn} is the average A-weighted acoustical energy for a 24-hour period with a 10 dB upward adjustment added to the nighttime levels (10:00 p.m. to 7:00 a.m.). This adjustment is an effort to account for the increased sensitivity of most people to noise in the nighttime hours. The L_{dn} has been adopted by the United States Environmental Protection Agency (USEPA), the FAA, and the Department of Housing and Urban Development as the accepted unit for quantifying human annoyance to general environmental noise.

3.3.1.1 Effects of Noise Exposure

Annoyance is the primary human response to intermittent environmental noise that includes relatively long intervals of quiet (AIHA 1986). The degree of annoyance has been found to correlate well with the L_{dn} . A comparison of the L_{dn} with the percentage of the exposed population that is “highly annoyed” in combination with the estimated population exposed to L_{dn} levels greater than 65 dBA provides an estimate of the number of persons “highly annoyed” by aircraft noise. These levels of annoyance are based on long-term exposure. Annoyance for short-term activities, such as construction noise and new flight patterns, can be influenced by many factors, including habituation and attitude toward the activity creating the noise. Nonetheless, a comparison of this type provides the best available information to predict reactions to a new noise exposure.

3.3.1.2 Baseline Noise

Noise associated with activities at Altus AFB is characteristic of that associated with most Air Force installations with a flying mission. During periods of no aircraft activity, noise associated with base operations results primarily from maintenance and shop activities, ground traffic movement, occasional construction, and similar sources. The resultant noise is almost entirely restricted to the base itself and is comparable to that which might occur in adjacent community areas. It is only during periods of aircraft ground or flight activity that the situation changes. As Altus AFB is primarily a training base, most operations are conducted during daylight hours and on weekdays. Due to airfield operations, existing noise levels are typical of an urban residential area near a major airport. The L_{eq} measured in such an area during the daytime average around 59 dBA, whereas nighttime A-weighted sound levels average around 50 dBA (Harris 1991). Existing L_{dn} noise levels at Altus AFB would therefore be expected to be less than 65 dBA. Existing noise levels at Altus AFB due to flying operations are presented on Figure 3-2.



Source: USAF 2004

Figure 3-2 Baseline Noise Contours, Altus Air Force Base

3.3.1.3 Noise Complaints

The current body of evidence indicates that complaints are an inadequate indicator of noise effects on a population. The Air Force, nonetheless, has a strong commitment to address the concerns of the public in its effort to maintain excellent relations with the communities surrounding its installations. As such, the 97 AMW has a well-established and publicized noise complaint process to educate the local community, create goodwill, and promote openness between the base and the community.

The Public Affairs Office processes noise complaints by completing a noise complaint form from information provided by the complainant, logging the complaint, and referring the incident to the 97 AMW Operations Group for investigation. The Public Affairs Office will respond to the complainant with the results of the investigation via a telephone call, a visit, or through correspondence. The noise complaint form, specifically designed for Altus AFB, includes a description of the noise incident and other pertinent information.

3.3.2 Air Quality

3.3.2.1 Meteorology

The meteorological conditions in the vicinity of Altus AFB are extremely diverse. Location, air-mass characteristics, and the jet stream combine to create a wide range of weather activity. The resulting atmospheric conditions may change suddenly and with little warning.

Altus AFB is located in an area with diverse regional weather conditions. Maritime tropical air masses from the Gulf of Mexico move seasonally over the eastern portion of North America. The north-central part of Mexico spawns dry, hot continental air masses. These two air masses dominate the weather activity of southwestern Oklahoma. Altus AFB has a humid, subtropical climate; more rainfall occurs during the warmest six months of the year than the coldest six months. Severe weather conditions may manifest as droughts, tornadoes, and blizzards (USAF 2002).

The average annual mean temperature for Altus AFB is 62 degrees Fahrenheit (°F). The average temperature during the summer months is 83°F with record extremes ranging from 49°F to 116°F. The average mean temperature during the winter is 38°F with record extremes ranging from -4°F to 91°F. Altus AFB averages 24 days per year with temperatures in excess of 100°F and 94 days with temperatures above 90°F. Sub-freezing temperatures occur an average of 73 days per year with 3 days per year reaching below 10°F (USAF 2002).

The average annual relative humidity is 72 percent in the morning and 46 percent in early afternoon. The climate of Altus AFB is described as humid and subtropical, with the greatest amounts of rainfall occurring during the warmest 6 months of the year. Mean precipitation is 24.7 inches per year, with May being the wettest month and January the driest. Mean snowfall averages 7 inches per year with most occurring in February (USAF 2002).

The predominant wind direction is from the southeast. The average wind velocity is 6 knots with a maximum recorded wind speed of 82 knots. Thunderstorms occur an average of 46 days per year. Fog, with accompanying visibility less than 7 miles, occurs an average of 69 days per year with extremes of 8 days per month from December through March (USAF 2002).

3.3.2.2 Air Pollutants and Regulations

The USEPA has established primary and secondary National Ambient Air Quality Standards (NAAQS) under the provisions of the Clean Air Act (CAA). The CAA not only established the NAAQS, but also set emission limits for certain air pollutants from specific sources, set new source performance standards based on best demonstrated technologies, and established national emissions standards for hazardous air pollutants.

The USEPA classifies the air quality within an Air Quality Control Region (AQCR) according to whether the region meets federal primary and secondary NAAQS. Primary standards define levels of air quality necessary to protect public health with an adequate margin of safety. Secondary standards define levels of air quality necessary to protect public welfare (i.e., soils, vegetation, and wildlife) from any known or anticipated adverse effects of a pollutant. Federal NAAQS are currently established for six pollutants (known as “criteria pollutants”); including carbon monoxide (CO), nitrogen dioxide, ozone (O₃), sulfur oxides (SO_x, commonly measured as sulfur dioxide [SO₂]), lead, and particulate matter equal to or less than 10 microns in diameter (PM₁₀). Although O₃ is considered a criteria pollutant, and is measurable in the atmosphere, it is not often considered as a pollutant when reporting emissions from specific sources. O₃ is not typically emitted directly from most emissions sources. It is formed in the atmosphere from its precursors, nitrogen oxides (NO_x) and volatile organic compounds (VOCs), which are directly emitted from various sources. Thus, NO_x, or nitrogen dioxide (NO₂), and VOCs are commonly reported instead of O₃.

The USEPA Office of Air Quality Planning and Standards has set national ambient air quality standards for the six criteria pollutants (Table 3-2). Units of measure for the standards shown in this table are micrograms per cubic meter of air (µg/m³), except for ozone, which is in parts per million (ppm).

Table 3-2 National Ambient Air Quality Standards

Pollutant	Standard Value ($\mu\text{g}/\text{m}^3$)^a	Standard Type
CO		
1 hr average	40,000	Primary
8 hr average	10,000	Primary
NO ₂		
Annual average	100	Primary and secondary
O ₃		
1 hr average	0.12	Primary and secondary
8 hr average ^b	0.08	Primary
Lead		
Quarterly average	1.5	Primary
PM ₁₀		
24 hr average ^c	150	Primary and secondary
Annual average ^d	50	Primary and secondary
PM _{2.5}		
24 hr average ^e	65	Primary
Annual average ^f	15	Primary
SO ₂		
3 hr average	1,300	Secondary
24 hr average	365	Primary
Annual average	80	Primary

^a Except for ppm for ozone.^b New ozone 8 hr standard does not become effective until area demonstrates compliance with existing 1 hr standard.^c Existing 24 hr standard for PM₁₀ will remain in effect but will be adjusted to 99th percentile of concentrations within an area.^d Existing PM₁₀ annual standard will remain in effect as is.^e New PM_{2.5} 24 hr standard is based on 98th percentile of concentrations over 1 year (averaged over 3 years) at population-oriented monitors using highest measured values.^f New PM_{2.5} annual standard is based on 3-year average of annual arithmetic means.CO – carbon monoxide
hr - hour
NO₂ – nitrogen dioxide
O₃ – ozonePM₁₀ – particulate matter equal to or less than 10 microns in diameter
PM_{2.5} – particulate matter equal to or less than 2.5 microns in diameter
SO₂ – sulfur dioxide

The USEPA classifies the air quality within an AQCR according to whether the region meets federal primary and secondary air quality standards. An AQCR or portion of an AQCR may be classified as attainment, non-attainment, or unclassified with regard to the air quality standards for each of the six criteria pollutants. “Attainment” describes a condition in which standards for one or more of the six pollutants are being met in an area. The area is considered an attainment area for only those criteria pollutants for which the national standards are being met. “Nonattainment” describes a condition in which standards for one or more of the six pollutants are not being met in an area. “Unclassified” indicates that air

quality in the area cannot be classified and the area is treated as attainment. An area may have all three classifications for different criteria pollutants.

Air quality management at Air Force installations is established in AFI 32-7040, *Air Quality Compliance*. AFI 32-7040 requires installations to achieve and maintain compliance with all applicable federal, state, and local standards for air quality compliance. Air quality compliance involves prevention, control, abatement, documentation, and reporting of air pollution from stationary and mobile sources. Maintaining compliance with air quality regulations may require reduction or elimination of pollutant emissions from existing sources, and control of new pollution sources.

3.3.2.3 Regional Air Quality

Altus AFB is located within southwestern Oklahoma Intrastate AQCR 189. The air quality in the region is generally good. All 12 counties within AQCR 189 are classified by the USEPA as attainment or unclassified for all criteria pollutants. A review of recent (1998 and 1997) air quality data from AQCR 189 showed no exceedances of the air quality standards for the monitored pollutants (CO, NO₂, O₃, and PM₁₀) (USAF 2002).

An accurate regional emissions inventory is needed for assessing the potential contribution of a source or group of sources to regional air quality. An emissions inventory is an estimate of the actual and potential pollutant emissions generated by a source or sources over a period of time, normally a calendar year. The inventory accounts for permitted stationary sources that are required to report annual emissions to the Oklahoma Department of Environmental Quality (ODEQ). It does not include emissions from mobile sources. Total annual (1997) emissions reported for stationary sources within AQCR 189 for five air pollutants are CO–21,374 tpy; VOC – 2,560 tpy; NO_x – 14,906 tpy; SO₂ – 1,185 tpy; and PM₁₀– 353 tpy (USAF 2002).

Altus AFB received its Title V Operating Permit (No. 99-117-0) from the ODEQ in August 2000. Because actual emissions from Altus AFB operations are relatively small (i.e., well below the “major source” threshold of 250 tpy), ODEQ has categorized Altus AFB as a “minor” source. Therefore, the Title V Operating Permit is formally labeled by ODEQ as a minor permit. Because potential NO_x emissions theoretically could be greater than 250 tpy (assuming all equipment operates 24 hours a day, 365 days a year), this type of operating permit is commonly referred to as a “synthetic minor” permit.

3.3.3 Earth Resources

3.3.3.1 Geology

According to the Jackson County Soil Survey, the surface rocks in the vicinity of Altus AFB belong to three geologic systems: the Recent and Quaternary deposits, and Hennessey shale. The Recent formations are the alluvium of floodplains along the major streams that are subject to overflow. The Quaternary deposits are composed of loamy and sandy materials. The Hennessey shale consists of red, silty shales and clays, with some

siltstone. The uppermost 5 to 40 feet of the Hennessey formation consist primarily of yellowish-gray, buff, tan, orange, yellow, or greenish-gray shale (USAF 2002).

3.3.3.2 Topography

The topography in the vicinity of Altus AFB consists of flat to gently rolling terrain, interspersed with occasional hills and small mountains. Land features such as solution sinks, canyons, mesas and buttes, and badlands also occur. In general, the land increases in elevation from east to west, and natural elevation ranges from about 1,300 feet to 2,900 feet mean sea level. The Wichita Mountains are located to the northeast, creating a backdrop to the base (USAF 2002).

3.3.3.3 Soils

Soils in the vicinity of Altus AFB are of two general groups: the Tillman-Hollister association and the Miles-Nobscot association. Within these two associations, the predominant soils in the areas surrounding the base include Tillman and Hollister clay loams (0 to 1 percent slopes), Miles fine sandy loams (0 to 3 percent slopes), Nobscot fine sand (0 to 5 percent slopes), and Altus fine sandy loam (0 to 1 percent slopes) (USAF 2002).

The major soil types found on the Altus AFB airfield are Miles fine sandy loam on the northern sections of the runways, Altus fine sandy loam around the center sections of the runways, and Tillman and Hollister clay loams on the southern sections of the runways. No areas composed of these soil types exceed a 3 percent slope. Miles fine sandy loam is susceptible to wind and water erosion. Tillman and Hollister clay loams are classified as having low erodibility where “erosion is not particularly a hazard.” During prolonged dry periods, however, the fine particles of clay and silt are detached from the soil mass and easily eroded. The county soil survey suggested the use of best management practices in areas possessing highly erodible soils that are farmed, including water-control devices, field terraces, diversion terraces, waterways, or farm ponds (USAF 2002).

3.3.4 Water Resources

3.3.4.1 Surface Water

Several streams are located on Altus AFB and in the surrounding areas. Stinking Creek flows from the northwest to the southeast, draining the northern and eastern portion of the base and flowing diagonally to the southeast corner of the base. Stinking Creek is a tributary to the North Fork of the Red River, joining the North Fork approximately 13 miles downstream of the base. The creek drains an approximate 27-square-mile area upstream of US Highway 62, which is adjacent to the southern base boundary. It is a perennial stream with a flow of less than 20 cubic feet per second, except during local rainfall. An unnamed tributary flows within and adjacent to the eastern property boundary of the base for a distance of approximately 5,000 feet (USAF 2002).

An agricultural irrigation canal, the Ozark Canal, enters base property at the northern end near the old Alert area, crossing the airfield below all three runways, and exiting at the easternmost base boundary. The canal’s diked banks preclude surface runoff from the base,

and the base has no access to its water. The canal is used for agricultural irrigation and may be dry or ponded during the off season (USAF 2002).

Surface water quality of the streams in the vicinity of Altus AFB is characterized as being of poor quality, with total dissolved solids concentrations of 1,000 milligrams per liter (mg/L) and higher. Water containing 500 mg/L or less of dissolved solids is generally considered satisfactory for most domestic and industrial uses (USAF 2002).

3.3.4.2 Groundwater

The Hennessey Shale group is the only significant hydrologic unit at Altus AFB. The group is exposed at the surface, and includes all the base acreage and areas surrounding the base. Water in the Hennessey Shale is generally unconfined and shallow and is not a major source of water in the Altus AFB area. Yields are generally small, sufficient only for stock and domestic purposes.

Precipitation is the primary source of recharge to the shallow water table. Groundwater storage fluctuates significantly due to seasonal variations and periods of above-average rainfall. When water is available, some local recharge also occurs near an unlined irrigation canal north of the installation (USAF 2002).

Movement of shallow groundwater at Altus AFB is to the southeast, generally paralleling the surface topography. The surface change of altitude across the base from the northwest to southeast is about 35 to 45 feet. The elevation change varies from approximately 1,375 feet (northwest corner of the existing housing area) and 1,385 feet (northernmost section of the runway) to approximately 1,340 feet in the southeast section of the base. This slope is mirrored in the shallow water table, with water level elevations measured in base monitoring wells ranging from about 1,366 feet in the northwest part of the base to about 1,339 feet in the southeast. The hydraulic conductivity of the clay containing the shallow water table was determined to be 3.3×10^{-8} feet per second. Measurements at base monitoring wells show that the depth to water ranges from less than 2 feet to over 12 feet below land surface. No natural surface discharge points are known to occur on the base (USAF 2002).

3.3.5 Hazardous Materials and Wastes

3.3.5.1 Hazardous Materials

Hazardous materials are those substances defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act, and the Toxic Substances Control Act. In general, hazardous materials include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or to the environment when released or otherwise improperly managed.

Hazardous materials management at Air Force installations is established primarily by AFI 32-7080, *Pollution Prevention Program*, which incorporates the requirements of all federal regulations, AFIs, and DoD Directives (DoDDs), for the reduction of hazardous

material uses and purchases. The primary hazardous materials addressed by AFI 32-7080 are ozone depleting chemicals and the 17 chemicals listed under the USEPA Industrial Toxics Program (EPA 17 chemicals). EO 12088, *Federal Compliance with Pollution Control Standards*, under the authority of the USEPA, ensures that necessary actions are taken for the prevention, management, and abatement of environmental pollution from hazardous materials or hazardous waste due to federal facility activities. Altus AFB developed a pollution prevention management plan, which requires compliance by all Altus AFB activities. The plan, *Pollution Prevention Management Plan, Altus Air Force Base, Volume I: Basic Plan*, and associated appendices were finalized in December 1993 (USAF 1993).

3.3.5.2 Hazardous Waste

The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes. RCRA Subtitle C (40 CFR Parts 260 through 270) regulations are administered by the USEPA and are applicable to the management of hazardous waste. Regulatory authority is subsequently delegated by the USEPA to the state of Oklahoma. These regulations require that hazardous waste be handled, stored, transported, disposed, or recycled in compliance with applicable regulations.

Altus AFB does not currently maintain any active permitted hazardous waste storage facilities. Building 451 was used in the past for hazardous waste storage, but is in the process of closure and is no longer used. Altus AFB maintains several satellite accumulation points throughout the base in accordance with RCRA and Air Force regulations. Hazardous waste generated in the workplace is temporarily accumulated at a satellite accumulation point located in the vicinity of generation. Upon accumulation limits being reached (typically 55 gallons per hazardous waste stream, or 1 quart for acutely hazardous waste streams), the waste is taken to a “less than 90-day” accumulation site located at Building 502. Wastes may also be taken directly to the “less than 90-day” accumulation site as they are generated. Within 89 days of arrival at Building 502, the waste is transferred off base to an authorized treatment, storage, or disposal facility under a contract managed by the Defense Reutilization and Marketing Office.

Altus AFB generated approximately 70,500 pounds of hazardous waste in 1996. Hazardous waste was generated primarily from aircraft maintenance operations, spent hazardous materials, and spills. Air Force waste management operations at Altus AFB are registered with the USEPA under identification number OK9571824045 (USAF 2002).

3.3.5.3 Installation Restoration Program

The DoD implemented the Installation Restoration Program (IRP) to identify the locations and contents of past toxic and hazardous material disposal and spill sites and to eliminate the hazards to public health in an environmentally responsible manner. The objectives of the IRP are to identify and fully evaluate any areas suspected to be contaminated with hazardous materials caused by past Air Force operations, and to eliminate or control any hazards to the public health, welfare, or the environment. The IRP is the basis for response actions on Air Force installations under provisions of CERCLA, and the

Superfund Amendments and Reauthorization Act of 1986, as clarified by EO 12580, *Superfund Implementation*.

A Phase I records search at Altus AFB identified 30 sites or areas of concern, 20 of which were determined to require no further action. The remaining 10 potential sites included four former fire-training areas, three former landfills, two former wash rack ponds, and a service station. Additional soil gas and geophysical studies were accomplished on the 10 sites to determine if contamination occurred in the shallow ground water, soils, surface drainages, and evaporation ponds on, or adjacent to, these sites. The results of these studies indicated that no further action, beyond long-term monitoring of shallow ground water, was required at five of the sites. The remaining five sites were recommended for further study under Phase II of the IRP process. On November 8, 1996, the USEPA issued a RCRA 3008 (h) order that directs the investigation and cleanup of several solid waste management units. The 3008 (h) order reopened all previously Air Force closed IRP sites at Altus AFB (USAF 2002).

One IRP site is located near the proposed gate security improvements. Specifically, Site SS-17 is located near the South Gate. IRP site SS-17 is a chlorinated hydrocarbon plume that encompasses a large area in the southern portion of Altus AFB. The Air Force currently has an interim remedial action in place that involves ground water withdrawal and treatment of the plume contaminants. The Air Force will be replacing this system with a permeable reactive barrier to capture off-Base migration of the plume at the Base boundary (Whallon 2004).

3.3.5.4 Lead-based Paint and Asbestos

Lead-based paint management at Air Force installations is established in the Air Force policy and guidance on lead-based paint in facilities. The policy incorporates by reference the requirements of 29 CFR 1910.1025, 29 CFR 1926, 40 CFR 50.12, 40 CFR 240 through 280, the CAA, Public Law 102-550, and other applicable federal regulations. This policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating lead-based paint hazards.

Lead-based paint activities at Altus AFB are managed by the base Environmental Protection Committee's lead-based paint subcommittee, which has representatives from civil engineering, the medical group, and safety. Lead-based paint detection sampling is accomplished prior to renovation or demolition of a facility. Initial surveys of key and priority facilities have been completed and follow-up monitoring is ongoing at these facilities. Inspection and abatement activities for facilities range from incidental and routine maintenance to full scale abatement in preparation for demolition. If lead-based paint is detected in a building prior to an action and is determined to be a potential hazard or threat, the debris from the demolition or renovation is then disposed of in accordance with applicable federal, state, and local hazardous waste and lead abatement regulations. Lead-based paint is managed according to the base's lead-based paint management plan (USAF 1996).

The USEPA and OSHA regulate asbestos. Emissions of asbestos to ambient air are controlled under Section 112 of the CAA. Identification of asbestos-containing material in base facilities is governed by OSHA under the authority of the Occupational Safety and Health Act, 29 USC §§ 669 et seq. The USEPA has a policy that addresses leaving asbestos in place if its disturbance or removal could pose a health threat.

Asbestos management at Air Force installations is established in AFI 32-1052, *Facility Asbestos Management*. AFI 32-1052 incorporates by reference applicable requirements of 29 CFR 669 et seq., 29 CFR 1910.1025, 29 CFR 1926.58, 40 CFR 61.140, Section 112 of the CAA, and other applicable AFIs and DoDDs. AFI 32-1052 requires installations to develop an asbestos management plan for the purposes of maintaining a permanent record of the current status and condition of all asbestos-containing material in the installation facility inventory and documenting all asbestos management efforts. In addition, the instruction requires installations to develop an asbestos operations plan that details how the installation will conduct asbestos-related projects (USAF 2002).

Altus AFB bioenvironmental engineering staff conducts asbestos sampling prior to renovation or demolition of a facility. The samples are sent to a state- or USEPA-certified laboratory for analysis. Asbestos-containing material is disposed of in accordance with RCRA statutes and transported under applicable Department of Transportation regulations. Asbestos management and operations involving asbestos are conducted according to the base's *Asbestos Management Plan* and *Asbestos Operations Plan* (USAF 2002).

3.3.6 Biological Resources

3.3.6.1 Vegetation

The southwest corner of Oklahoma lies in the transition zone between the mixed grass prairie and short grass prairie. Warm season grasses dominate this area and species common to both regions are found within the area. Most of the grassland found on more productive soils has been converted to crop and pasture lands. Marginal or low quality soils have been left or allowed to revert to rangeland, primarily mesquite. Woodlands are very limited, existing mainly as tree-row windbreaks and along waterways (USAF 2002).

The area surrounding Altus AFB is located within the mixed-grass prairie of the Kansan biotic province. Grasses and shrubs cover the majority of the uncultivated and undeveloped land. Very few native species of trees exist in the area (trees generally only occur naturally here along streams or irrigated areas), and attempts to establish trees on base have been difficult because of extreme temperatures, lack of moisture, and clay soils with high salt content. Native grasses consist primarily of little bluestem, sand bluestem, and switchgrass. Yucca, mesquite, sagebrush, and other xerophytic shrubs are scattered among the native grasses. Much of the native vegetation in the general vicinity of Altus AFB has been replaced by introduced species. Most vegetated areas on and adjacent to the base are actively landscaped or maintained (mowed). In addition, much of the mixed prairie in the vicinity of Altus AFB has been converted to short-grass pasture for livestock grazing. Wheat, cotton, sorghum, and alfalfa are the major crops grown in the area's cultivated fields.

A complete list of plant species and plant communities found in the vicinity of Altus AFB is included in the Oklahoma Biological Survey's endangered species survey for Altus AFB (USAF 2002).

3.3.6.2 Wildlife

Five small mammal (rodent) species are known to be found on Altus AFB. They are, in order of abundance, hispid cotton rat, white-footed mouse, house mouse, deer mouse, and fulvous harvest mouse. Many other wildlife species exist in the less developed conditions adjacent to Altus AFB. Some of the native mammals include fox squirrel, 13-lined ground squirrel, cottontail and jackrabbit, opossum, beaver, several species of mice, mule deer, coyote, and nine-banded armadillo. A total of 68 species of birds have been recorded on and adjacent to Altus AFB. The most common bird species on Altus AFB is the great-tailed grackle, with mourning doves the second most abundant. Other species observed frequently include cliff swallows, house sparrows, and western meadowlarks. A complete bird list is included in the Oklahoma Biological Survey's endangered species survey for Altus AFB (USAF 2002).

Altus AFB is located in an ecosystem that was originally grasslands. Characteristic bird species of the grasslands include raptors such as northern harrier, red-tailed hawk, and Swainson's hawk (summer only); northern bobwhite; wild turkey; assorted dove species, including mourning dove and rock dove; roadrunner; screech owl; assorted flycatcher species such as eastern kingbird, western kingbird, and scissor-tailed flycatcher; northern mockingbird; and grasshopper sparrow. Bird species associated with a municipal habitat include rock dove, house sparrow, and European starling (USAF 2002).

Populations of the above-mentioned species fluctuate with the season. With the exception of the raptors, the remaining more common species are relatively small in size and typically fly near the ground surface. Populations of raptors overall tend to increase during the late fall and winter. This area of Oklahoma is not within a primary raptor migration route but is within the wintering range of many raptors. Although herons and egrets may occur, these species typically do not occur in great concentrations and only at specialized habitat near water. Available maps indicate that suitable habitat is limited for these species (USAF 2002).

There are several aquatic habitats in the Altus AFB area, including Stinking Creek, tributaries to Stinking Creek, irrigation canals, and upland drainage ditches. On the basis of the state of Oklahoma water classification system, Stinking Creek is considered a primary warm-water fishery. However, because of the small surface area of the creek near the base and the effects of agricultural disturbances, no significant game-fish populations are present (USAF 2002).

3.3.6.3 Threatened and Endangered Species

A listed species, provided protection under the Endangered Species Act, is so designated because of danger of its extinction as a consequence of economic growth and development without adequate concern and conservation. The United States Fish and Wildlife Service (USFWS) denotes the status of a species for listing as threatened or endangered by category classification. A Category 1 candidate is a species where sufficient information exists to

support a threatened or endangered listing, but the proposed rules for listing have not yet been issued. A Category 2 candidate is a species which is under consideration for listing as threatened or endangered, but not enough information is known to merit listing (USAF 2002).

There are no state or federal records indicating that threatened or endangered species occur on or near Altus AFB. Two federally listed endangered species are known to exist in Jackson County, the interior least tern (*Stern antillarum athalassos*) and the whooping crane (*Grus americana*). However, there are no records of either of these species occurring near or on the base. The interior least tern is known to nest in Oklahoma during summer months, using sandbars along major rivers and around reservoirs. The whooping crane is known to migrate through the state during spring and fall, using prairie wetland areas and major rivers as stopover sites. Only one other southwestern Oklahoma species is listed as threatened: the bald eagle. Bald eagles have been recorded in this part of the state during the winter, although not in Jackson County or Washita County. No areas on Altus AFB are likely to attract this species. The 1997 Oklahoma Biological Survey found it highly improbable that federally listed species would be drawn to Altus AFB given the extent and type of habitats present there. In addition, there are no known rare species or communities, refuges, management areas, nature preserves, or registry natural areas within 1 mile of the base (USAF 2002).

3.3.6.4 Wetlands

Four federal agencies are responsible for identifying and regulating wetlands: the United States Army Corps of Engineers (USACE), the EPA, the USFWS, and the Natural Resource Conservation Service. The USACE and USEPA are primarily responsible for making jurisdictional determinations and regulating wetlands under Section 404 of the Clean Water Act (CWA). The USACE also makes jurisdictional determinations under Section 10 of the Rivers and Harbors Act of 1899. The Natural Resource Conservation Service has developed procedures for identifying wetlands for compliance with the Flood Security Act of 1985, and the USFWS has developed a classification system for identifying wetlands. The protection of wetlands is also mandated under EO 11990.

The results of a 1994 USACE wetlands survey on Altus AFB indicated that four main areas within the base boundaries are jurisdictional wetlands. Several streambed and bank systems, which are jurisdictional as “other waters of the United States,” are also located on base (USAF 2002).

Four areas were identified on base that have small, isolated wetland islands. In these areas, the exposed bed supported wetland indicator plants, while the presence of hydric soils varied throughout the system. Within Altus AFB, these wetlands areas were observed within channelized portions of Stinking Creek and several unnamed tributaries that connect to the creek. The small, intermittent islands of emergent wetland indicator plants that occur within defined beds are regulated as wetlands. Two plant species common to these isolated wetlands were three-square bulrush (*Scirpus pungens*) and Small’s spikerush (*Eleocharis smallii*) (USAF 2002).

These areas are also subject to Section 404 regulatory review. Eight areas on base include drainages and swales that have been constructed within historical uplands to provide site drainage for internal base facilities. Although technically these systems may constitute waters of the United States, they are not considered jurisdictional for Section 404 review. Another eight areas serve as percolation ponds for treatment systems or were part of the water hazards for the base golf course. These excavated depressions are not regulated under Section 404 of the CWA. In 1998, near the northern portion of the airfield, small wet areas caused by construction activities were assessed, delineated, and filled in following USACE direction, after they were determined not to be jurisdictional wetlands (USAF 2002).

A formal survey of land outside the boundaries has not been performed. However, based on information provided on the National Wetlands Inventory map, several wetland areas are mapped downstream of existing base housing. One of these areas is adjacent to the base, just south of the main gate. Several areas are also located adjacent to the southwest base boundary. The area just south of the main gate does not meet the qualifications of a jurisdictional wetland, as no hydric soils were identified (USAF 2002).

3.3.6.5 Floodplains

EO 11988, *Floodplain Management*, May 24, 1977, states that federal agencies "... shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains." The EO requires that an agency shall avoid undertaking or providing assistance for new construction located in floodplains and that if the head of the agency finds that there is no practicable alternative to such construction, the proposed action must include all practicable measures to minimize harm to floodplains, which may result from such use.

The National Flood Insurance Program (NFIP), administered by the Federal Emergency Management Agency, was created in 1968 to provide flood insurance to people who live in areas with the greatest risk of flooding, called special flood hazard areas (SFHAs). Generally, the SFHAs are those portions of participating communities within the 100-year floodplain. Figure 3-3 shows the boundaries of the two 100-year floodplains on Altus AFB defined from the USACE survey conducted in 1994. One of the floodplain areas is located on the northeast portion of the base extends from the north end of the base, runs between the west runway and the Assault Landing Strip to the south, then crosses the east runway and finally exits the base. The second floodplain runs along the western and southern portions of the installation. A 100-year flood is a hydrological event of a magnitude expected to be equaled or exceeded once, on the average, during any 100-year period or commonly have a one percent chance of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The 100-year floodplain includes land that during such an event would be flooded. The NFIP is effective only for participating communities. The city of Altus is a participant, but Jackson County is not (USAF 2002).



Figure 3-3 Location of the 100-Year Floodplains, Altus Air Force Base

3.3.7 Utilities and Infrastructure

Resources discussed in this section include transportation facilities on Altus AFB and the local utility services. The ROI for these resources is limited to the immediate vicinity of the Main Gate, North Gate, and South Gate on Altus AFB.

3.3.7.1 Stormwater Drainage

The stormwater collection system at Altus AFB was originally designed to accommodate on-base stormwater flows and projected increased flows associated with future base expansion. However, increased storm flow from the impervious surfaces of off-base housing developments to the northeast caused flooding problems in certain areas of the base. Floodways that discharge into Stinking Creek were installed in susceptible flood-prone areas. The base also experiences flooding during significant rains at the main gate and in the family camping and recreation areas. The problem occurs where Stinking Creek exits the base property and the creek channel narrows. This bottleneck, coupled with the work of beavers, causes water to back up onto base property and flood these low-lying areas. A joint effort by Altus AFB, Jackson County, and the city of Altus is underway to construct retention/detention basins to help alleviate the drainage problems. Construction activities related to new roads near the base recreation areas also have incorporated drainage improvements along the creek (USAF 2002a).

A site inspection conducted in 2002 showed existing floodways throughout the base to be in good condition, although some drainage problems persist in lower-lying areas on base. Stormwater drainage pipes ranging in size from 12 to 66 inches in diameter have been installed throughout the base to quickly drain excessive volumes of stormwater. All water collected in the stormwater collection system drains off to the south, where the water enters Stinking Creek, or to the east via an irrigation canal. A Stormwater Pollution Prevention Management Plan, with measures such as mini-booms, oil-water separators, and operable outfall gates, is in place to recover any pollutants entering the system. In general, responsible adherence to stormwater management and pollution reduction plans is simply considered “good housekeeping” for the base. There are approximately 740 acres of impervious cover on Altus AFB (USAF 2002a).

3.3.7.2 Solid Waste Management

Municipal solid waste management and compliance at Air Force installations are established in AFI 32-7042, Solid and Hazardous Waste Compliance. AFI 32-7042 incorporates by reference the requirements of RCRA Subtitle D, 40 CFR 240 through 244, 257, and 258, and all other applicable federal regulations, AFIs, and DoD directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for handling, storage, collection, and disposal of solid waste; record keeping and reporting; and recycling of solid waste, as addressed in AFI 32-7080, Pollution Prevention Program. All municipal solid waste generated at Altus AFB is managed by Air Force contractors and subsequently disposed of at the city of Altus landfill.

All municipal solid waste generated at Altus AFB is managed by Air Force contractors and subsequently disposed of at the city of Altus Landfill which operates a 470-acre disposal facility. The city of Altus Landfill opened in 1983 and operates under ODEQ Permit Number 3533005. The landfill is scheduled for closure in 2015 and receives an average of approximately 120 tons of solid waste per day, or about 43,800 tpy. The total capacity of the landfill is approximately 2 million tons (USAF 2002a).

3.3.7.3 Transportation

Some access streets near the base become congested, particularly in areas with heavy concentrations of office and workspace. During peak traffic times, access to Altus AFB is influenced by heavy traffic, particularly at the Main Gate. The Main Gate is open 24 hours a day, 7 days a week. With two inbound and two outbound lanes the Main Gate experiences approximately 663 vehicles during the morning peak hour traffic. The South Gate is open only on workdays from 6:00 a.m. to 6:00 p.m. The single inbound and outbound lanes operate as inbound only and experiences approximately 160 vehicles during the peak morning hour. The street system handles the traffic well during non-peak times. North Gate serves only the adjacent on-base housing community and is only open for three hours on both Saturdays and Sundays (1430 to 1730). Given the relatively recent addition of the North Gate and the limited hours of operation, there are no current traffic counts for that gate.

Vehicle occupancy information obtained from the 97th Security Police Squadron showed that the 1996 average vehicle occupancy rate for Altus AFB was approximately 1.3 persons per vehicle. Approximately 6,540 vehicles per day passed through base gates on workdays. No scheduled on-base shuttle bus service is available for transporting personnel around the base (USAF 2002a).

3.3.7.4 Electricity and Natural Gas

Western Farmers Electric Cooperative supplies electrical power to Altus AFB. The substation that serves the base has a capacity of 25,000 kilovolt-amperes (kVA). This substation was upgraded in March 2001 and has one, 3-phase transformer rated 15/20/25,000 kVA. In FY 03, Altus AFB used 73,742,480 kilowatt-hours (kWH) of electricity. This equates to an average of 202,034 kWH per day (Bellon 2004).

CenterPoint Energy supplies natural gas to Altus AFB. The design capacity of the natural gas supply system is 134 thousand cubic feet per hour. Annual usage for FY 03 was 232,033 thousand cubic feet, an average of 636 thousand cubic feet per day (Bellon 2004).

3.3.7.5 Sanitary Sewer

Wastewater from Altus AFB is treated at the city of Altus owned and operated Southeast Wastewater Treatment Plant (WWTP) located just south of Altus AFB near Stinking Creek. Primary treatment processes include aerobic aeration and clarification of the wastewater. The clarifier effluent is discharged directly into Stinking Creek without disinfection. The flow of Stinking Creek intersects with the North Fork Red River, which flows into the Red River. The North Fork Red River is fed from the outflows of both the Tom Steed Reservoir and Lake Altus (USAF 2002a).

The Southeast WWTP was designed to process a nominal throughput of 2.3 million gallons per day (mgd) with current average daily flows ranging from 1.2 to 2.3 mgd. An addition of one aeration basin and the modification and rehabilitation of the two existing clarifiers have increased the safe peak hydraulic capacity to 4.0 mgd. Excess flow is diverted to a holding pond to avoid overloading the plant when the influent flow rate exceeds the hydraulic capacity (USAF 2002a).

The Altus AFB wastewater collection system has a line capacity of approximately 250,000 gallons with a design capacity of approximately 3.0 mgd. The system has an average demand of 0.75 mgd, and a historical peak demand of 1.3 mgd, which occurred in June 1991. The collection system is adequate, although many sections of the wastewater collection system are quite old and in need of replacement. Infiltration is also a common problem, and the base is currently replacing many of the aging and deteriorating wastewater collection mains. East of the flightline, the collection system service area is limited. Seven septic tank systems have been installed in this limited service area, ranging in size from 500 to 3,000 gallons (USAF 2002a).

3.3.7.6 Potable Water

Altus AFB's sole source of potable water is from the city of Altus municipal water supply. The municipal water system obtains raw water from Lake Tom Steed and supplies the city and surrounding communities with treated potable water from the main water treatment plant. The city of Altus water treatment plant has a maximum treatment capacity of 12.0 mgd and an average daily demand of 5.8 mgd. The water distribution system at Altus AFB is adequate, although many water main sections are quite old and in need of replacement. The water main distribution network is presently a mix of transite, cast iron, and plastic pipes. The oldest pipes were installed during World War II, when the base first became operational. The base is currently replacing some aging and deteriorating water mains. Much of the water mains in the Bicentennial Housing Area have already been replaced with 6-, 8-, and 10-inch plastic pipes (USAF 2002a).

The Altus AFB water distribution system has a line capacity of approximately 250,000 gallons and a design capacity of approximately 3.0 mgd. The system has an average demand of 0.98 mgd, and a historical peak demand of 1.95 mgd. The distribution system maintains an average system pressure of about 58 pounds per square inch. Water is supplied to the base from the city of Altus through two large water mains, which enter the base near the main gate. The city of Altus maintains the delivery water mains up to the abandoned base water treatment plant located in Building 309. Currently, the only function of the base water treatment plant is to meter the water (USAF 2002a).

Altus AFB has a total of five elevated water storage tanks, two potable and three nonpotable. The two potable water storage tanks have a water storage capacity of 500,000 gallons and 250,000 gallons with overflow elevations of 136 feet and 132 feet, respectively. Currently, both elevated potable water storage tanks are off-line because the water pressure provided by the city of Altus is greater than the water pressure obtainable from the two elevated storage tanks. The three nonpotable water storage tanks are used

specifically for fire protection. A 500,000-gallon tank is utilized for protection of the maintenance hangers. A 300,000-gallon and a 150,000-gallon tanks provide protection of Buildings 424, 435, 509, and 518, and two corrosion control hangers, currently under construction (USAF 2002a).

3.3.8 Socioeconomics

Altus AFB generates economic activity within Jackson County through employee payrolls, local procurements, and other expenditures. The surrounding communities and Altus AFB depend on one another for employment, goods, and services.

Altus AFB supports approximately 2,000 permanent military personnel and approximately 540 students in training per month. About 1,200 military personnel and their families live on base and another 750 live off base. Although the number of military personnel has decreased over the past several years, employment in the non-appropriated fund and contract civilian categories has increased to offset the loss of military personnel (USAF 2002a).

In FY99, the Altus AFB payroll expenditures totaled more than \$140 million. Table 3-3 details gross payroll expenditures during FY 99. The total economic contribution of Altus AFB to the Jackson County area was estimated to be \$201.8 million in FY 99 (USAF 2002a).

Table 3-3 Gross Payroll, Fiscal Year 1999, Altus Air Force Base

Category	Expenditures
Appropriated fund military (military permanent party)	\$64,444,691
Appropriated fund civilian	42,913,445
Contract civilians	12,550,000
Other civilians	850,289
Military retirees (Air Force, Army, Marines, Navy, Coast Guard)	20,040,000
Total Payroll	\$140,798,425

Source: USAF 2002a

As reported in the 1999 Altus AFB Economic Impact Report, the Air Force manages more than \$453.3 million in capital assets at Altus AFB. The base-controlled resources were valued at nearly \$4.6 billion at the end of FY 99. In addition, Altus AFB construction projects and other contracts for services, materials, and equipment for FY 99 totaled \$38.3 million (USAF 2002a).

Altus AFB provides direct employment for approximately 2,400 area residents. An estimated 1,700 area jobs are indirectly supported by the operations of the base. Approximately 98 percent of base employees reside within Jackson County. Altus AFB directly employs nearly 23 percent of the Jackson County workforce, and nearly 16 percent of the county civilian workforce (USAF 2002a).

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter describes potential impacts that could occur if the proposed action is implemented at Altus AFB. Additionally, potential impacts are addressed for the no-action alternative and cumulative impacts are analyzed for the additional actions proposed at Altus AFB. Any resultant irreversible or irretrievable resource commitments are noted. Significance criteria used to evaluate potential impacts are discussed at the beginning of each resource area. Increased aircraft operations and personnel authorizations are not a part of the proposed or alternative actions.

4.2 CHANGE IN CURRENT MISSION

The primary missions of Altus AFB would continue. However, implementation of the proposed action would allow Altus AFB to more effectively meet mission and security requirements.

4.3 DESCRIPTION OF THE EFFECTS OF ALL ALTERNATIVES ON THE AFFECTED ENVIRONMENT

4.3.1 Noise

In evaluating noise impacts, several items were examined, including: 1) the degree to which noise levels generated by construction and demolition activities were higher than the ambient noise levels, 2) the degree to which there is annoyance and/or activity interference, and 3) the proximity of noise-sensitive receptors to the noise source.

The primary means of assessing environmental noise is through computer simulations since direct measurement of noise levels is often impractical, expensive, and inconclusive. Unlike a topographic contour, noise contours are not intended to be precise representations of the noise zones. Geographic features, meteorology, the receiver's perception of the source, etc., can influence the impact of noise. Noise contours do not clearly divide noise zones with one side of the line compatible and the other side incompatible. However, the use of noise contour maps has proven to be a useful planning tool in noise-affected areas.

4.3.1.1 Proposed Action

Vehicles and equipment involved in demolition, facility construction, and finishing work would generate the primary noise from the proposed action. The typical noise levels generated by these activities range from 75 to 89 dBA at 50 feet from the source.

Assuming that noise from the heavy equipment radiates equally in all directions, the sound intensity diminishes inversely as the square of the distance from the source. Therefore, in a free field (no reflections of sound), the L_p decreases 6 dB with each doubling of the distance from the source. Under most conditions, reflected sound will reduce the attenuation due to distance. Therefore, doubling the distance may only result in a decrease of 4 to 5 dB (AIHA 1986). Table 4-1 shows the anticipated sound pressure levels at a distance of 50 feet for miscellaneous heavy equipment. Construction noise would be intermittent and short-term in duration. The distance to off-base sensitive receptors in the vicinity of the short-term construction activities (North Gate, Main Gate, South Gate) would be greater than 1,000 feet. Assuming a maximum noise level of 89 dBA measured 50 feet from the source, the distances from each of the project areas to off-base sensitive receptors would be sufficient to allow noise levels to naturally attenuate to levels within existing conditions at the installation.

Table 4-1 Heavy Equipment Noise Levels at 50 Feet

Equipment Type ^a	Number Used ^a	Generated Noise Levels, L_p (dBA) ^b
Bulldozer	1	88
Backhoe (rubber tire)	1	80
Front Loader (rubber tire)	1	80
Dump Truck	1	75
Concrete Truck	1	75
Concrete Finisher	1	80
Crane	1	75
Flat-bed Truck (18 Wheel)	1	75
Scraper	1	89
Trenching Machine	1	85

^a Estimated

^b Source: CERL 1978

dBA – A-weighted sound level, measured in decibels

Construction activities would be expected to occur between 7:30 a.m. and 4:30 p.m. Noise levels at residences in the vicinity of the construction activities would be less than 65 dBA. Minor annoyances to on-base sensitive receptors in the vicinity of the three gates from the demolition and construction activities associated with exposures to noise exceeding 65 dBA would be of short duration. No changes in aircraft operations are anticipated from implementation of the proposed action. In addition, existing noise levels from current aircraft operations in the vicinity of the proposed South Gate activities (Figure 3-2) would mask most noise generated from demolition and construction activities. Long-term noise impacts would not be anticipated.

4.3.1.2 No-Action Alternative

Under the no-action alternative, there would be no change from the baseline conditions described in Section 3.3.1.

4.3.1.3 Cumulative Impacts

The beddown of additional C-17 aircraft at Altus AFB would result in additional aircraft operations in the vicinity of Altus AFB. A separate analysis of the beddown of additional C-17 aircraft was completed in July 2004. However, due to the reduction of C-5 operations within the ROI, no cumulative impacts are anticipated from the C-17 Program Changes, MFH privatization project, Base CE Complex, or the proposed construction and operation of a DASR facility at Altus AFB. Operating procedures, which may further decrease noise impacts, are detailed in Section 4.3.1.4.

4.3.1.4 Mitigative Actions

Existing baseline noise levels at Altus AFB would not be increased from the implementation of the proposed action. Noise levels would be temporarily increased from the demolition and construction projects. However, mitigation measures would not be required for the proposed action.

In addition, noise-generating construction equipment at the project site should be equipped with the manufacturer's standard noise control devices (i.e., mufflers, baffling, and/or engine enclosures). All equipment should be properly maintained to assure that no additional noise from worn or improperly maintained equipment parts is generated. Occupational exposure to noise from construction equipment could be reduced by requiring construction workers to wear appropriate hearing protection, and hearing protective devices such as ear plugs or ear muffs should be worn at all locations where workers may be exposed to high noise levels.

4.3.2 Air Quality

As defined in 40 CFR 52.21, the proposed action or alternative action would be considered a major source of emissions if total emissions of any pollutant subject to regulation under the CAA are greater than the major source threshold of 250 tpy for attainment and unclassified areas. Sources emitting less than the major source threshold for attainment and unclassified areas would not be considered major and would generally be considered regionally insignificant.

4.3.2.1 Proposed Action

The projects under the proposed action would generate primarily heavy equipment emissions and fugitive dust emissions from demolition and construction activities. The following paragraphs detail the assumptions used in calculating emissions and describe the impacts of the emissions.

Fugitive dust emissions for the proposed demolition activities would be generated primarily from building demolition, debris loading, and debris hauling. An emission factor of 0.0073 pounds of PM₁₀ per square foot of demolished floor area was developed based on USEPA-approved methodologies for demolition of structures constructed primarily of wood (USEPA 1988 and Murphy and Chatterjee 1976). This factor was used to calculate annual fugitive dust emissions for the demolition projects given the total area of the

buildings. Calculation of fugitive dust emissions for the proposed action is presented in Appendix A.

Exhaust emissions would be generated by equipment during construction of proposed projects. Specific information describing the length of operation, daily mileage, or specific usage of heavy construction equipment varies from project to project. Based on the type of equipment and duration of use, the USEPA has established factors for the emission of criteria air pollutants by heavy equipment used for construction activities (USEPA 1985). The type of equipment and hours of operation for the proposed construction activities were estimated based on anticipated project requirements and established usage factors for construction equipment (Means 1997a and Means 1997b). Calculation of heavy equipment emissions for the proposed action is presented in Appendix B.

Table 4-2 summarizes the estimated pollutant emissions associated with the proposed action. Each project under the proposed action would generate one-time emissions which may or may not occur simultaneously with emissions from other proposed action projects depending on the scheduling of the projects. Totals presented in Table 4-2 represent the total one-time emissions over the entire course of the proposed projects. Recurring (long-term) emissions are not anticipated as a result of the implementation of the proposed action.

Table 4-2 Estimated Increase in Pollutant Emissions within AQCR 189, Proposed Action

Emissions Source	Pollutant Emissions (tons)					
	CO	VOCs	NO _x	SO _x	PM ₁₀	Lead
Heavy Equipment Emissions (Construction)	3.91	0.63	6.83	0.73	0.46	--
Fugitive Dust Emissions (Demolition)	--	--	--	--	0.48	--
Fugitive Dust Emissions (Construction)	--	--	--	--	0.002	--
Total Estimated Emissions^a	3.91	0.63	6.83	0.73	0.94	0.00
AQCR 189 Baseline Emissions ^b	2,662.8	2,401.1	10,615.2	1,330.0	530.3	NR
Increase from Baseline (%)^c	0.15	0.03	0.06	0.05	0.18	0.00

a Emissions from each proposed project would be one-time emissions which may or may not occur simultaneously with emissions from other proposed projects depending on the scheduling of the projects. Totals represent the total one-time emissions from all construction projects.

b Source: USAF 2002

c Percent increase assumes emissions from all projects would occur simultaneously.

CO – carbon monoxide

NO₂ – nitrogen dioxide

NR – not reported

O₃ – ozone

PM₁₀ – particulate matter equal to or less than 10 microns in diameter

PM_{2.5} – particulate matter equal to or less than 2.5 microns in diameter

SO₂ – sulfur dioxide

% – percent

AQCR – Air Quality Control Region

To assess maximum potential impact from the projects, the estimated percent increases from baseline emissions assume that emissions from the projects would occur simultaneously. As shown, the maximum increase in emissions for any pollutant as compared to the AQCR 189 baseline emissions would be an increase of about 0.18 percent for PM₁₀. Emissions of all pollutants under the proposed action would be less than 250 tpy; therefore, the proposed action would not be considered regionally significant. All projects under the proposed action are considered temporary activities and would not be expected to cause long-term impacts to local or regional baseline air quality. The primary short-term air quality impacts resulting from these projects at Altus AFB would be a temporary increase of air pollutants within Jackson County and AQCR 189, which would cease as soon as the projects were completed. Fugitive dust emissions from ground disturbing activities would be minimized and kept under proper control. Control measures are further discussed in Section 4.3.2.4. The use of dust control measures, the most common being wet suppression with potable water, as part of best management practices at the construction sites would be expected to reduce PM₁₀ emissions from the levels presented in Table 4-2 and control visible particulate emissions at the sites. Actual reduction quantities would vary depending on a variety of factors including frequency of water application, site traffic levels, wind speed and direction, and soil type, among others.

All 12 counties within AQCR 189, including Jackson County, are classified by the USEPA as attainment or unclassified for all criteria pollutants. Therefore, the proposed action is not subject to the de minimis and conformity determination requirements of the USEPA Final Conformity Rule as defined in 40 CFR 93.153. Additionally, the proposed construction projects as described above would be in compliance with the Oklahoma State Implementation Plan.

4.3.2.2 No-Action Alternative

Under the no-action alternative, the proposed projects would not occur. As a result, emissions would not occur and the AQCR 189 baseline emissions inventory would not be affected.

4.3.2.3 Cumulative Impacts

The beddown of additional C-17 aircraft at Altus AFB could potentially result in additional aircraft operations in the vicinity of Altus AFB. A separate analysis of the beddown of additional C-17 Aircraft was completed in July 2004. However, based on the elimination of C-5 operations, the ROI would experience a net reduction of all pollutants within the ROI. In addition, no cumulative impacts are anticipated when considering the MFH privatization project, Base CE Complex, or the proposed construction and operation of a DASR facility at Altus AFB due to the substantial reductions experienced under the C-17 program changes. Table 4-3 summarizes the estimated pollutant emissions associated with select cumulative actions within the ROI. Operating procedures, which may further decrease air impacts, are detailed in Section 4.3.2.4.

**Table 4-3 Estimated Increase in Pollutant Emissions within
AQCR 189, Proposed Action**

Emissions Source	Pollutant Emissions (tons)					
	CO	VOCs	NO _x	SO _x	PM ₁₀	Lead
Gate Security Improvements	3.91	0.63	6.83	0.73	0.94	--
Military Family Housing Privatization	6.13	2.01	14.06	1.50	8.59	--
C-17 Program Changes	-160.3	-27.5	-626.0	-55.5	-66.1	--
Base Civil Engineer Complex	3.22	0.69	8.02	0.86	1.01	--
Total Estimated Emissions^a	-147.04	-24.17	-597.09	-52.41	-55.56	0.00
AQCR 189 Baseline Emissions ^b	2,662.8	2,401.1	10,615.2	1,330.0	530.3	NR
Increase from Baseline (%)^c	-5.52	-1.01	-5.62	-3.94	-10.48	0.00

a Emissions from each proposed project would be one-time emissions which may or may not occur simultaneously with emissions from other proposed projects depending on the scheduling of the projects. Totals represent the total one-time emissions from all construction projects.

b Source: USAF 2002

c Percent increase assumes emissions from all projects would occur simultaneously.

CO – carbon monoxide

NO₂ – nitrogen dioxide

NR – not reported

O₃ – ozone

PM₁₀ – particulate matter equal to or less than 10 microns in diameter

PM_{2.5} – particulate matter equal to or less than 2.5 microns in diameter

SO₂ – sulfur dioxide

% – percent

AQCR – Air Quality Control Region

4.3.2.4 Mitigative Actions

Potential, short-term impacts from site clearing activities and corresponding emissions of PM₁₀ would be minimized and kept under control in accordance with federal, state, and local guidelines (where applicable) for reduction of fugitive dust emissions. These control measures may include, but are not limited to: periodic watering of construction sites and disturbed areas, reduction of vehicle speeds, covering of dirt and aggregate trucks and/or piles, prevention of dirt carryover to paved roads, and construction of erosion barriers and wind breaks.

4.3.3 Earth Resources

In evaluating impacts on earth resources, several items were examined, including 1) the degree to which the proposed action and alternatives could potentially disrupt the ground surface and destroy the soil profile through excavation and removal of rock and soil in the construction of facilities and 2) the degree to which the proposed action and alternatives could potentially increase erosion caused by the disturbance of the ground surface during the construction and demolition of facilities.

4.3.3.1 Proposed Action

The proposed demolition and construction projects at Altus AFB would require soil disturbances, typical of these activities. Construction projects on Altus AFB would be located in previously disturbed areas. Impacts to earth resources would be minimized by use of standard engineering practices (e.g., application of water for dust control) that reduce wind erosion or silt fences that reduce runoff erosion.

4.3.3.2 No-Action Alternative

Under the no-action alternative, soil disturbances would not occur. Therefore, there would be no change from the baseline conditions described in Section 3.3.3.

4.3.3.3 Cumulative Impacts

Demolition and construction of facilities anticipated under the proposed actions would not involve extensive modification of surface features. Potential cumulative impacts to soils would include increased soil erosion during the construction periods. However, these cumulative impacts would be minimized by use of standard engineering practices (e.g., application of water for dust control) that reduce wind erosion or silt fences that reduce runoff erosion.

4.3.3.4 Mitigative Actions

Only minor soil erosion from wind and stormwater runoff would be expected during construction activities. Accepted containment procedures, including adequate watering, would be implemented during the construction phases to minimize sediment runoff from the disturbed area. Therefore, given the current conditions and the proposed plans and actions, no mitigation measures are required.

4.3.4 Water Resources

In evaluating impacts on water resources, several items were considered, including: 1) the degree to which the proposed action and alternatives change impermeable surface areas, 2) the degree to which the proposed action and alternatives degrade surface water quality, and 3) the degree to which the potential decline in groundwater levels results in a substantial depletion of water resources.

4.3.4.1 Surface Water

4.3.4.1.1 Proposed Action

As detailed in Table 4-4, 1.76 acres of impervious (impenetrable) cover would be added to the installation for the proposed projects. Compared to the approximately 740 acres of impervious cover on Altus AFB, this will increase the total amount of impervious cover (0.24 percent) and result in a minimal impact on the total volume of stormwater runoff. Increased run off due to conversion of grass to pavement is approximately 0.42 cubic feet per second, based on a runoff coefficient for grass of 0.15,

Table 4-4 Summary of Impervious Cover Impacts, Proposed Action

Project	Area Demolished Acres	Area Constructed Acres
Facility and Roadway Demolition		
South Gate	0.63	2.16
Main Gate	2.32	2.45
North Gate	0.08	0.18
Area Totals	3.03	4.79
TOTAL GAIN (LOSS):		1.76

Source: Calculated from project descriptions.

0.95 for pavement, and using a 25 year 24 hour storm intensity event of 7 inches per 24-hour period, assuming a hourly rate of 0.3 inches per hour, and a collection time of 20 minutes (USACE 2000).

The incorporation of best management practices for sediment control during construction would minimize potential water quality problems. Since construction and demolition activities would require the disturbance of more than one acre, a Notice of Intent (NOI) under the general Oklahoma stormwater discharge permit for construction activities shall be filed with USEPA prior to construction. Additionally, the construction contractor shall be required to develop a stormwater pollution prevention plan for the project prior to submittal of the NOI. After completion of the project, a Notice of Termination (NOT) under the general permit shall be filed with USEPA.

4.3.4.1.2 No-Action Alternative

Under the no-action alternative, there would be no change from the baseline conditions described in Section 3.3.4.1.

4.3.4.1.3 Cumulative Impacts

The C-17 Program Changes, Base CE Complex, MFH privatization, and DASR system are expected to cumulatively increase impervious surface cover at Altus AFB. The net cumulative effect on stormwater at Altus AFB, due to the proposed activities, would be minimal when compared to the whole installation. Table 4-5 provides detail regarding the potential changes to impervious cover from the proposed action, C-17 Program Changes, Base CE Complex, MFH privatization, and the DASR system.

Table 4-5 Summary of Impervious Cover Impacts, Proposed Action

Project	Surface Cover (acres)
C-17 Facilities	11.17
Digital Airport Surveillance Radar Facility	1.37
Military Family Housing Privatization	0.00
Gate Security Improvements	1.76
Base CE Complex	0.9
TOTAL:	15.20

Source: Calculated from project descriptions.

4.3.4.1.4 Mitigative Actions

Mitigation measures to protect human health and welfare would not be required for the proposed action. Impacts on water resources from the proposed action are minimal when compared to the whole installation.

4.3.4.2 Groundwater

4.3.4.2.1 Proposed Action

There would be no effect on groundwater from implementation of the proposed action.

4.3.4.2.2 No-Action Alternative

Under the no-action alternative, there would be no change from the baseline conditions described in Section 3.3.4.2.

4.3.4.2.3 Cumulative Impacts

Since there would be no effect on groundwater associated with the proposed actions at Altus AFB, there would be no cumulative impacts.

4.3.4.2.4 Mitigative Actions

Mitigation measures to protect health and welfare would not be required for the proposed action.

4.3.5 Hazardous Materials

The evaluation of impacts on hazardous materials included the assessment of the degree to which proposed construction activities could affect the existing environment.

4.3.5.1 Proposed Action

Hazardous materials used for the proposed action would be limited to those typical to a construction environment (e.g., fluids and fuels for construction equipment, asphalt ingredients, paints, etc.). The typical use of these materials in accordance with instructions and applicable regulations is not likely to create environmental release. The

agency or contractor performing the construction would manage hazardous materials used during the project.

Hazardous wastes are not expected as a result of the construction or operation projects. The hazardous materials described above are typically consumed in process and would therefore not create waste as an end product. If generated, hazardous wastes from the construction activities would be managed in accordance with applicable regulations by the agency or contractor generating the waste.

IRP sites; specifically groundwater associated with Site SS-17, could be impacted by the proposed demolition and construction projects. Any construction that would result in disturbing soils that encounter the groundwater may be listed hazardous wastes. If soil spoils contain greater than 0.1 mg/kg trichloroethane, they will need to be disposed of as hazardous waste. Potential impacts would be with the excavation area from the installation of storm sewers, storm sewer inlets, road excavations, gate posts, or any other activity that disturbs the soil below the ground water table. An IRP construction site waiver is required by HQ AETC/CE. The required waiver would be obtained prior to implementation of the proposed action.

Lead-based paint detection sampling and asbestos sampling would be accomplished prior to demolition of a facility. If identified, these materials would be managed in accordance with existing plans and procedures established by Altus AFB. Demolition of substandard facilities containing lead-based paint and asbestos would decrease the potential of exposure to lead-based paint and asbestos.

4.3.5.2 No-Action Alternative

Under the no-action alternative, there would be no change in the management of hazardous wastes as described in Section 3.3.6.1.

4.3.5.3 Cumulative Impacts

The proposed action would contribute to a potential short-term increase in hazardous materials usage to support other construction actions. The contribution of the proposed actions to hazardous materials use would cease upon completion of the construction activities.

Hazardous wastes are not expected to be generated as a result of the proposed action. Therefore, the proposed action would not be expected to contribute cumulatively to hazardous waste generated from other actions at Altus AFB. No cumulative impacts to IRP sites or asbestos or lead-based paint waste management activities would be expected from the proposed actions at Altus AFB.

4.3.5.4 Mitigative Actions

Spills of liquid products such as fuels, oils, and cleaning solvents should be managed according to the existing installation spill response plans. These documents implement applicable state and federal laws for management of these substances.

4.3.6 Biological Resources

Potential impacts to biological resources are determined by analyzing the proposed action and alternatives within the context of existing conditions for regional biota and ecosystems. An impact to biological resources would occur if the proposed action would affect threatened or endangered species, substantially diminish habitat for a plant or animal species, substantially diminish a regionally or locally important plant or animal species, interfere substantially with wildlife movement or reproductive behavior, or result in a substantial infusion of exotic plant or animal species.

4.3.6.1 Proposed Action

4.3.6.1.1 Vegetation and Wildlife

The proposed demolition and construction activities would occur within previously disturbed portions of Altus AFB. There would be no impacts to vegetation outside the proposed project areas and best management practices during demolition and construction would minimize impacts to vegetation at and near the construction sites. New trees, shrubs, and other landscaping would provide additional urban habitat for birds and other wildlife. The construction activities associated with the proposed action would not impact wildlife reproduction, movement, or habitat.

4.3.6.1.2 Threatened and Endangered Species

No threatened or endangered species are known on Altus AFB; therefore, there would be no impact from the proposed action. In addition, the proposed action would have no impact on the continued existence of the federal and state listed endangered or threatened species that occur in Jackson County.

4.3.6.1.3 Wetlands

The proposed demolition and construction activities associated with the proposed action would not occur in wetland areas.

4.3.6.1.4 Floodplains

The proposed action would be located within areas designated as part of the 100-year floodplain (Figure 3-3). In order to access the base through either the Main Gate or the South Gate, individuals must cross through the 100-year floodplain located along the western and southern portions of the Altus AFB. However, the existing roadway and gate facilities at the South Gate are built up to an elevation above the floodplain. In order to minimize the potential damage related to flood events, all of the new facilities and roadways at both the Main Gate and South Gate would be raised one to two feet above floodplain elevation. Site-specific drainage systems will be designed and engineered to efficiently direct stormwater out of the area. There will be no increase in the amount of area subject to flooding in the event of a 100-year flood as a result of the proposed action. Additionally, the operation of the facilities would not diminish stormwater quality during a flood event. Figures 4-1 and 4-2 show the floodplain in



Figure 4-1 Location of the 100-Year Floodplain and the Main Gate, Altus AFB

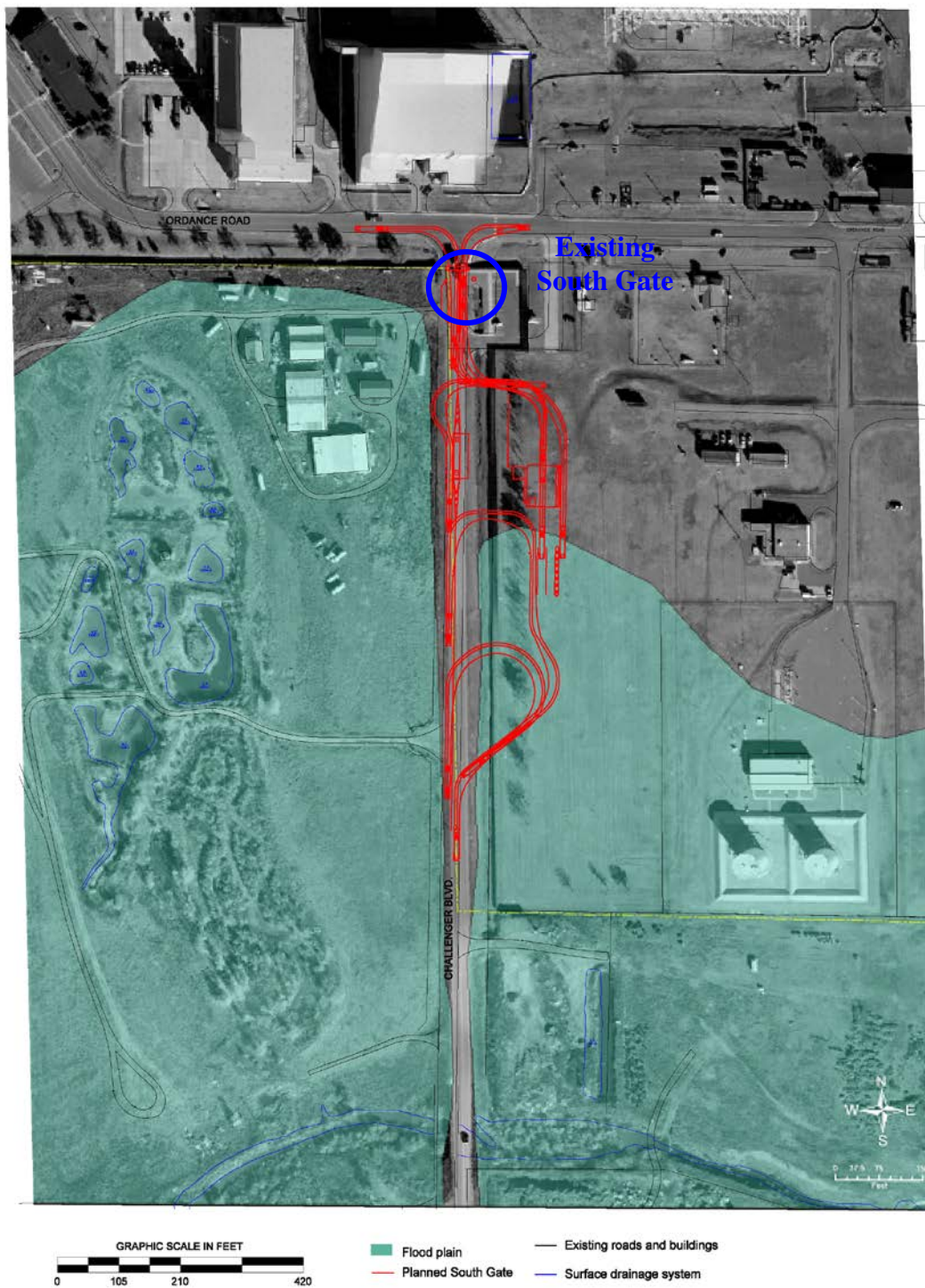


Figure 4-2 Location of the 100-Year Floodplain and the South Gate, Altus AFB

relationship to the Main Gate and South Gate projects, respectively. All actions for the Main Gate are located within the 100-year floodplain. Portions of the proposed action at the South Gate are located within the 100-year floodplain.

4.3.6.2 No-Action Alternative

The construction of the proposed gate facilities would not take place. Therefore, no impacts to biological resources on Altus AFB would occur under the no-action alternative.

4.3.6.3 Cumulative Impacts

Cumulative impacts to biological resources would not occur under the ongoing actions on, or in the vicinity of, Altus AFB.

4.3.6.4 Mitigative Actions

A majority of the construction and demolition of facilities would be within previously disturbed areas. Overall, impacts to biological resources inclusive of endangered or threatened species would not occur. Therefore, no mitigation measures beyond best management construction practices are required.

4.3.7 Utilities and Infrastructure

In evaluating impacts on infrastructure and utilities, several items were examined, including: 1) the degree to which a utility service would have to alter operating practices and personnel requirements, 2) the degree to which the change in demands from implementation of the proposed action and alternatives would impact system's capacity, 3) the degree to which a transportation system would have to alter operating practices and personnel requirements to support the action, 4) the capacity required from new or revised transportation systems, 5) the degree to which the increased demands from the proposed program would reduce the reliability of transportation systems, or aggravate already existing adverse conditions on base, and 6) the degree to which the proposed action and alternatives change surface water runoff characteristics and erosion characteristics. For the evaluation of potential impacts, the ROI for the infrastructure and utilities resource area encompasses Altus AFB.

4.3.7.1 Stormwater Drainage

4.3.7.1.1 Proposed Action

Under the proposed action, several facilities would be constructed at Altus AFB. As detailed in Table 4-4, a total of 1.76 acres of impervious cover would be added to the installation. This is expected to have a minimal impact on the total amount of impervious cover (0.24 percent) and on the total volume of stormwater runoff and would not impact existing capacity of the stormwater drainage systems. Additionally, new site-specific stormwater drainage would be designed, engineered, and implemented at each gate location to move stormwater efficiently into the overall drainage system.

Construction activities disturbing less than one acre that are not part of a larger plan do not require permitting. If the construction activity disturbs between one and five acres, a stormwater discharge permit for small construction activities would be required. Permitting for small construction activities is a relatively new regulation that appeared in Phase II (08 December 1998) of the National Stormwater Program. Construction activities requiring a stormwater permit would require the Air Force to develop a Stormwater Pollution Prevention Plan (SWPPP), perform an endangered species act certification process, complete and submit an NOI form to apply for permit coverage, implement the SWPPP, and submit an NOT to discontinue coverage if final stabilization has been achieved at the site.

4.3.7.1.2 No-Action Alternative

Under the no-action alternative, there would be no demolition or construction projects; therefore, there would be no effect on stormwater drainage as described in Section 3.3.7.1.

4.3.7.1.3 Cumulative Impacts

Overall, construction of facilities under the proposed and alternative actions, C-17 Program Changes, Base CE Complex, MFH privatization, and DASR system are expected to cumulatively increase impervious surface cover within the ROI. However, minimal impacts on the total amount of impervious cover and on the total volume of stormwater runoff are expected. The cumulative increases are not expected to impact existing stormwater drainage systems; therefore, no cumulative impacts are expected.

4.3.7.1.4 Mitigative Actions

The ground surface areas at Altus AFB are level, and only minor erosion from stormwater runoff would be expected. Accepted containment procedures would be implemented during the construction phases to minimize sediment runoff from the disturbed areas; therefore, no mitigation measures are required.

4.3.7.2 Solid Waste Management

In considering the basis for evaluating solid waste impacts, several items were considered, including evaluating the degree to which proposed construction, changes in operations, and the potential for generating additional waste could effect the existing solid waste management program and capacity of the area landfills. The solid waste generated during the construction and demolition phases of the project would consist of building materials such as solid pieces of concrete, metals (conduit, piping, wiring), and lumber.

The analysis presented in this section incorporates the following assumptions:

- The approximate rate of solid waste generation from construction and addition debris is 4.25 pounds per square foot (Murphy and Chatterjee 1976).

- The approximate rate of solid waste generation for construction of brick and concrete structures is 3.0 cubic feet per square foot (Murphy and Chatterjee 1976);
- The approximate rate of solid waste generation from interior construction and alteration debris is 7 pounds per square foot (Murphy and Chatterjee, 1976).
- The approximate weight of asphaltic concrete is 120 pounds per cubic foot (Merritt 1976);
- The approximate rate of solid waste generation per person is 3.0 pounds per day (Murphy and Chatterjee 1976).
- The approximate rate of solid waste generation per student is 1.5 pounds per day (Murphy and Chatterjee 1976).

4.3.7.2.1 Proposed Action

Solid waste generation would increase as a result of the proposed construction and demolition activities. Solid waste would be generated from the demolition activities associated with the existing roadways, park areas, and facilities (Table 4-6). However, given the location the Main Gate and South Gate in the floodplain and the need for the installation to build up the areas to an elevation above the floodplain, the amount of roadway and parking area materials (asphalt, concrete and debris) removed from the sites would be less than expected under normal conditions. As a conservative measure, it was assumed that only 25 percent of the existing square footage of roadways and parking areas would be removed prior to construction. This one-time generation of solid waste would equate to approximately 994 tons, or about two percent of the annual quantity of solid waste received at the Altus Landfill (43,800 tons). The Altus Landfill has the capacity to accommodate the one-time generation of solid waste from the proposed construction and demolition activities.

There would be no daily net increase of permanent party personnel and students associated with the proposed action. Therefore, there would be no increase in the generation of recurring solid waste.

4.3.7.2.2 No-Action Alternative

Under the no-action alternative, there would be no demolition or construction activities. Therefore, there would be no effect on solid waste management as described in Section 3.3.7.2.

Table 4-6 Solid Waste Generation for the Proposed Construction and Demolition Activities

	Roadways/Parking Areas Square Feet		Total Waste
	Square Feet	Factor	Tons
Proposed (Construction) Roadways and Parking Areas	205,789	---	---
Proposed (Construction) Facilities	2,541	4.25 pounds per square foot	5
Existing (Demolition) Roadways and Parking Areas	131,561*	120 pounds per cubic foot	987
Existing (Demolition) Facilities	675	7 pounds per square foot	2
Total Waste Generated	--	---	994
* Twenty five percent of the total area would be removed at a depth of six inches.			

4.3.7.2.3 Cumulative Impacts

Analysis of the potential impacts from other proposed actions within the ROI have been, or are currently being analyzed in separate NEPA documents. These actions are not directly related to the proposed and alternative actions evaluated in this EA, but are additional actions identified within the ROI.

Solid wastes generated within the ROI would cumulatively decrease the life of the city of Altus landfill; however, with a capacity of over 2,000,000 tons, it is expected there would be adequate capacity to manage solid waste generated by the proposed and alternative actions, Base CE Complex, C-17 Program Changes, MFH privatization, and DASR system.

4.3.7.2.3 Mitigative Actions

Since demolition and construction waste generated under the proposed actions would be managed and disposed of by the contractor and existing waste management and disposal facilities are adequate to handle the addition of waste materials, no mitigation measures are required. Some of the waste debris could be pulverized by mechanical grinding prior to disposal to further decrease the volume of waste disposed at the landfill.

4.3.7.3 Transportation

4.3.7.3.1 Proposed Action

Under the proposed action, there would be no daily net increase in the amount of permanent party personnel or students accessing Altus AFB. As part of the implementation of the proposed action only one gate would be improved at a time. Interim traffic measures (Section 2.4.4) may be implemented in order to minimize the disruption of traffic flow onto and off of the installation. During the construction and improvement activities at each gate, individuals accessing and departing the base may be routed to other gates on the installation including the two previously constructed temporary gates. Minor traffic congestion from the construction activities could occur as a result of heavy equipment and contractor vehicles. This congestion would be short-term, and would cease upon completion of the projects. Roadways in the vicinity of the installation would experience a temporary increase during the interim period due to the re-routing of traffic but would significantly improve once construction activities were complete.

4.3.7.3.2 No-Action Alternative

Impacts to transportation under the alternative action would be the same as described for the proposed action (Section 3.3.7.3).

4.3.7.3.3 Cumulative Impacts

Transportation within the ROI may experience slight, localized short-term impacts during the construction and demolition of the proposed facilities as a result of the operation of construction equipment; however, impacts would be minimized by the short operating period associated with each project.

Cumulative impacts to transportation associated with the proposed gate enhancements would create a positive influence over the long-term flow of traffic onto and off of the installation. As a result, there would be no cumulative impacts associated with the implementation of the proposed action and the other actions described in Section 2.7.

4.3.7.3.3 Mitigative Actions

Interim measures to minimize any short-term impacts have been defined as part of the proposed action. Therefore, no other mitigative actions would be required.

4.3.7.4 Electricity and Natural Gas

4.3.7.4.1 Proposed Action

Habitable space on Altus AFB would increase by approximately 207 square feet as a result of the proposed action. This would result in a negligible increased demand on electricity and natural gas. Based on unused capacity in the electrical and natural gas distribution systems at Altus AFB and with the regional suppliers (Section 3.3.7.4), the

increase in requirements generated by the project activities could be accommodated by each system.

4.3.7.4.2 No-Action Alternative

Under the no-action alternative, there would be no demolition or construction activities. Therefore, there would be no effect on electricity and natural gas as described in Section 3.3.7.4.

4.3.7.4.3 Cumulative Impacts

There would be no change in the number of people working and living on the installation and only a negligible increase in habitable space. As such, there would be no cumulative impacts to the existing electricity supply and distribution systems as a result of the proposed action and those efforts defined in Section 2.7.

4.3.7.4.3 Mitigative Actions

Mitigation measures for increased energy requirements would not be required for the proposed action.

4.3.7.5 Sanitary Sewer

4.3.7.5.1 Proposed Action

There would be no increase in the number of individuals working and living on Altus AFB. As such, impacts to the sanitary sewer system would be consistent with those defined in Section 4.3.7.4.

4.3.7.5.2 No-Action Alternative

Under the no-action alternative, there would be no demolition or construction activities. Therefore, there would be no effect on the sanitary sewer system as described in Section 3.3.7.5.

4.3.7.5.3 Cumulative Impacts

There would be no increase in wastewater generation on Altus AFB as a result of the proposed action and those efforts defined in Section 2.7. Therefore, cumulative impacts to the Southeast WWTP are not expected.

4.3.7.5.3 Mitigative Actions

Mitigation measures to protect health and welfare would not be required for the proposed action. Impacts on wastewater treatment and capacities would not occur.

4.3.7.6 Potable Water

4.3.7.6.1 Proposed Action

There would be no increase in the number of individuals working and living on Altus AFB. As such, impacts to the potable system would be consistent with those defined in Section 4.3.7.4.

4.3.7.6.2 No-Action Alternative

Under the no-action alternative, there would be no demolition or construction activities. Therefore, there would be no effect on potable water system as described in Section 3.3.7.6.

4.3.7.6.3 Cumulative Impacts

There would be no increase in amount of potable water used on Altus AFB as a result of the proposed action and those efforts defined in Section 2.7. Therefore, cumulative impacts to the regional water supply or system are not expected.

4.3.7.6.3 Mitigative Actions

No impacts to the potable water supply would be anticipated at Altus AFB for the proposed action or alternatives. Therefore, no mitigative actions would be required.

4.3.8 Socioeconomics

The socioeconomic analysis for this effort addressed the potential impacts to population, housing, and the economy within the ROI that could result from the implementation of the proposed action and alternatives.

4.3.8.1 Proposed Action

The proposed gate enhancements would not increase the number of permanent-party personnel at Altus AFB. As such, there would be no impact to the population of Jackson County or the city of Altus. Additionally, there would be no impact on the housing market or regional economy as a result of the proposed action. Slight benefits would occur to the local economy through the proposed construction and projects.

Altus AFB is a dynamic installation, with military construction projects occurring every year. The proposed construction activities would be in line with previous years' construction budgets, and would not be expecting to generate large economic benefits for the local community.

4.3.8.2 No-Action Alternative

Under the no-action alternative, there would be no change from baseline conditions as described in Section 3.3.8.

4.3.8.3 Cumulative Impacts

The proposed action and all other announced actions for Altus AFB would take place in the vicinity of the base, and would not be expected to increase the population of the base, draw from the local housing market, or contribute to the local economy. Therefore, no cumulative effects are anticipated.

4.3.8.4 Mitigative Actions

Mitigation measures would not be required for the proposed or alternative actions.

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CHAPTER 5

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Robin Divine SAIC	B.A, Geography and Environmental Management M.A.G., Geography and Environmental Management	Environmental Scientist	14
Carol Johnson SAIC	B.S., Education	Drafting Technician	9
Aaron Patino SAIC	B.S., Education	Technical Editor	3
Kent R. Wells SAIC	B.S., Geology M.S., Industrial Hygiene	Environmental Scientist	17
Victoria Wark SAIC	B.S., Biology	Environmental Scientist	18

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CHAPTER 6

PERSONS AND AGENCIES CONSULTED

The following individuals were consulted during the preparation of this EA:

6.1 FEDERAL AGENCIES

Altus Air Force Base

Bellon, James (97 CES/CEVN)
Sirmons, Heath (97 CES/CECB)
Whallon, Art (97 CES/CEVR)

Headquarters Air Education and Training Command

Voorhees, Ron (HQ AETC/CEVN)

6.2 STATE AGENCIES

Oklahoma Department of Environmental Quality

Graham, Margaret

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CHAPTER 7**REFERENCES**

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- USAF 1996. United States Air Force, *Lead-Based Paint Management Plan, Altus Air Force Base, Oklahoma*, April 1996.
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-

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- USEPA 1985. United States Environmental Protection Agency, *Compilation of Air Pollutant Emission Factors, Volume 2: Mobile Sources (AP-42)*, 4th Edition, Ann Arbor, September 1985.
- USEPA 1988. United States Environmental Protection Agency, *Gap Filling PM₁₀ Emission Factors for Selected Open Dust Sources*, February, 1988.
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APPENDIX A**AIR QUALITY ANALYSIS****AIR POLLUTANT EMISSION CALCULATIONS, ALTUS AFB, OKLAHOMA****SUMMARY OF PROPOSED ACTION EMISSIONS****Summary of Emissions, Proposed Action**

Emissions Source	Emissions (tpy)					
	SO_x	NO_x	CO	VOC	PM₁₀	Lead
Heavy Equipment Emissions (Construction) ^a	0.73	6.83	3.91	0.63	0.46	0.00
Fugitive Dust Emissions (Construction) ^a	0.00	0.00	0.00	0.00	0.002	0.00
Fugitive Dust Emissions (Demolition) ^a	0.00	0.00	0.00	0.00	0.48	0.00
Total Emissions:	0.73	6.83	3.91	0.63	0.94	0.00

^a All construction emissions are considered to be temporary emissions.

HEAVY EQUIPMENT EMISSIONS, PROPOSED ACTION
Roadway/Parking Areas, South Gate

Equipment Type	Number Used	Operation (Hours) ^a	Emission Factors (lb/hr) ^b					Lead
			SO _x	NO _x	CO	VOC	PM ₁₀	
Bulldozer	1	64	0.137	1.260	0.346	0.148	0.112	0.000
Backhoe (rubber tire)	1	104	0.182	1.890	0.572	0.291	0.172	0.000
Front Loader (rubber tire)	1	85	0.182	1.890	0.572	0.291	0.172	0.000
Dump Truck	1	133	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Truck	1	357	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Finisher	1	48	0.023	0.412	17.000	0.580	0.025	0.000
Crane	1	240	0.137	1.260	0.346	0.148	0.112	0.000
Asphalt Spreader	1	80	0.143	1.691	0.675	0.183	0.139	0.000
Asphalt Roller	1	40	0.067	0.862	0.304	0.083	0.050	0.000
Flat-bed (18 Wheel)	1	216	0.454	4.166	1.794	0.304	0.256	0.000
Grader	1	24	0.086	0.713	0.151	0.052	0.061	0.000
Trenching Machine	1	0	0.143	1.691	0.675	0.183	0.139	0.000
Total Emissions (lb/yr):			414	3,888	2,366	362	263	0
Total Emissions (tpy):			0.21	1.94	1.18	0.18	0.13	0.00

^a Estimated using factors from Means, 1997a and Means, 1997b.^b Source: USEPA, 1985**HEAVY EQUIPMENT EMISSIONS, PROPOSED ACTION**
Facilities, South Gate

Equipment Type	Number Used	Operation (Hours) ^a	Emission Factors (lb/hr) ^b					Lead
			SO _x	NO _x	CO	VOC	PM ₁₀	
Bulldozer	1	18	0.137	1.260	0.346	0.148	0.112	0.000
Backhoe (rubber tire)	1	38	0.182	1.890	0.572	0.291	0.172	0.000
Front Loader (rubber tire)	1	32	0.182	1.890	0.572	0.291	0.172	0.000
Dump Truck	1	44	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Truck	1	47	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Finisher	1	0	0.023	0.412	17.000	0.580	0.025	0.000
Crane	1	0	0.137	1.260	0.346	0.148	0.112	0.000
Asphalt Spreader	1	0	0.143	1.691	0.675	0.183	0.139	0.000
Asphalt Roller	1	0	0.067	0.862	0.304	0.083	0.050	0.000
Flat-bed (18 Wheel)	1	72	0.454	4.166	1.794	0.304	0.256	0.000
Grader	1	0	0.086	0.713	0.151	0.052	0.061	0.000
Trenching Machine	1	0	0.143	1.691	0.675	0.183	0.139	0.000
Total Emissions (lb/yr):			89	834	339	73	56	0
Total Emissions (tpy):			0.04	0.42	0.17	0.04	0.03	0.00

^a Estimated using factors from Means, 1997a and Means, 1997b.^b Source: USEPA, 1985

HEAVY EQUIPMENT EMISSIONS, PROPOSED ACTION**Roadway/Parking Areas, North Gate**

Equipment Type	Number Used	Operation (Hours) ^a	Emission Factors (lb/hr) ^b					Lead
			SO _x	NO _x	CO	VOC	PM ₁₀	
Bulldozer	1	32	0.137	1.260	0.346	0.148	0.112	0.000
Backhoe (rubber tire)	1	72	0.182	1.890	0.572	0.291	0.172	0.000
Front Loader (rubber tire)	1	56	0.182	1.890	0.572	0.291	0.172	0.000
Dump Truck	1	112	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Truck	1	280	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Finisher	1	38	0.023	0.412	17.000	0.580	0.025	0.000
Crane	1	198	0.137	1.260	0.346	0.148	0.112	0.000
Asphalt Spreader	1	60	0.143	1.691	0.675	0.183	0.139	0.000
Asphalt Roller	1	24	0.067	0.862	0.304	0.083	0.050	0.000
Flat-bed (18 Wheel)	1	186	0.454	4.166	1.794	0.304	0.256	0.000
Grader	1	16	0.086	0.713	0.151	0.052	0.061	0.000
Trenching Machine	1	0	0.143	1.691	0.675	0.183	0.139	0.000
Total Emissions (lb/yr):			330	3,089	1,886	283	207	0
Total Emissions (tpy):			0.16	1.54	0.94	0.14	0.10	0.00

^a Estimated using factors from Means, 1997a and Means, 1997b.^b Source: USEPA, 1985**Facilities, North Gate**

Equipment Type	Number Used	Operation (Hours) ^a	Emission Factors (lb/hr) ^b					Lead
			SO _x	NO _x	CO	VOC	PM ₁₀	
Bulldozer	1	16	0.137	1.260	0.346	0.148	0.112	0.000
Backhoe (rubber tire)	1	32	0.182	1.890	0.572	0.291	0.172	0.000
Front Loader (rubber tire)	1	28	0.182	1.890	0.572	0.291	0.172	0.000
Dump Truck	1	40	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Truck	1	43	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Finisher	1	0	0.023	0.412	17.000	0.580	0.025	0.000
Crane	1	0	0.137	1.260	0.346	0.148	0.112	0.000
Asphalt Spreader	1	0	0.143	1.691	0.675	0.183	0.139	0.000
Asphalt Roller	1	0	0.067	0.862	0.304	0.083	0.050	0.000
Flat-bed (18 Wheel)	1	64	0.454	4.166	1.794	0.304	0.256	0.000
Grader	1	0	0.086	0.713	0.151	0.052	0.061	0.000
Trenching Machine	1	0	0.143	1.691	0.675	0.183	0.139	0.000
Total Emissions (lb/yr):			80	746	304	65	50	0
Total Emissions (tpy):			0.04	0.37	0.15	0.03	0.02	0.00

^a Estimated using factors from Means, 1997a and Means, 1997b.^b Source: USEPA, 1985

HEAVY EQUIPMENT EMISSIONS, PROPOSED ACTION**Roadway/Parking Areas, Main Gate**

Equipment Type	Number Used	Operation (Hours) ^a	Emission Factors (lb/hr) ^b					Lead
			SOx	NOx	CO	VOC	PM ₁₀	
Bulldozer	1	70	0.137	1.260	0.346	0.148	0.112	0.000
Backhoe (rubber tire)	1	120	0.182	1.890	0.572	0.291	0.172	0.000
Front Loader (rubber tire)	1	90	0.182	1.890	0.572	0.291	0.172	0.000
Dump Truck	1	140	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Truck	1	380	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Finisher	1	52	0.023	0.412	17.000	0.580	0.025	0.000
Crane	1	260	0.137	1.260	0.346	0.148	0.112	0.000
Asphalt Spreader	1	88	0.143	1.691	0.675	0.183	0.139	0.000
Asphalt Roller	1	44	0.067	0.862	0.304	0.083	0.050	0.000
Flat-bed (18 Wheel)	1	224	0.454	4.166	1.794	0.304	0.256	0.000
Grader	1	30	0.086	0.713	0.151	0.052	0.061	0.000
Trenching Machine	1	0	0.143	1.691	0.675	0.183	0.139	0.000
Total Emissions (lb/yr):			441	4,142	2,530	388	281	0
Total Emissions (tpy):			0.22	2.07	1.27	0.19	0.14	0.00

^a Estimated using factors from Means, 1997a and Means, 1997b.^b Source: USEPA, 1985**Facilities, Main Gate**

Equipment Type	Number Used	Operation (Hours) ^a	Emission Factors (lb/hr) ^b					Lead
			SOx	NOx	CO	VOC	PM ₁₀	
Bulldozer	1	20	0.137	1.260	0.346	0.148	0.112	0.000
Backhoe (rubber tire)	1	40	0.182	1.890	0.572	0.291	0.172	0.000
Front Loader (rubber tire)	1	36	0.182	1.890	0.572	0.291	0.172	0.000
Dump Truck	1	48	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Truck	1	60	0.454	4.166	1.794	0.304	0.256	0.000
Concrete Finisher	1	0	0.023	0.412	17.000	0.580	0.025	0.000
Crane	1	0	0.137	1.260	0.346	0.148	0.112	0.000
Asphalt Spreader	1	0	0.143	1.691	0.675	0.183	0.139	0.000
Asphalt Roller	1	0	0.067	0.862	0.304	0.083	0.050	0.000
Flat-bed (18 Wheel)	1	80	0.454	4.166	1.794	0.304	0.256	0.000
Grader	1	0	0.086	0.713	0.151	0.052	0.061	0.000
Trenching Machine	1	0	0.143	1.691	0.675	0.183	0.139	0.000
Total Emissions (lb/yr):			102	952	388	82	63	0
Total Emissions (tpy):			0.05	0.48	0.19	0.04	0.03	0.00

^a Estimated using factors from Means, 1997a and Means, 1997b.^b Source: USEPA, 1985

FUGITIVE DUST EMISSIONS, PROPOSED ACTION**Construction of Facilities at Altus AFB, Oklahoma, Proposed Action**

Project	Disturbed Area (ft²)	Disturbance Duration (days)	PM₁₀ Emissions (lbs) *	PM₁₀ Emissions (tons)
South Gate	774	2.8	1	0.00
Main Gate	1,317	4.6	3	0.00
North Gate	450	2.2	0	0.00
Total Emissions:			4	0.00

* Based on emission factor of 19.2 pounds per acre per day derived from USEPA, 1995.

FUGITIVE DUST EMISSIONS, DEMOLITION PROJECTS**PM₁₀ Emissions from Demolition Projects**

Description	Total Floor Area (ft²)	Emission Factor (lb/ft²)*	PM₁₀ Emissions (lbs)
South Gate, Facilities	225	0.0073	1.6
South Gate, Roads	27,408	0.0073	200.1
North Gate, Facilities	225	0.0073	1.6
North Gate, Roads	100,913	0.0073	736.7
Main Gate, Facilities	225	0.0073	1.6
Main Gate, Roads	3,240	0.0073	23.7
Total Emissions (lbs/yr):			965.3
Total Emissions (tpy):			0.48

* Developed from methodologies in USEPA, 1988 and Murphy and Chatterjee, 1976.

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DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Stator
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73523

Board of County Commissioners
Jackson County
101 North Main
Altus, Oklahoma 73521

Dear County Commissioners:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

Any questions concerning the proposal should be directed to our consultant, Science Applications International Corporation (SAIC). The point of contact at SAIC is Mr. Kent Wells. He can be reached at (210) 731-2217. The comment period for this action is 30 calendar days from October 4, 2004. Comments may be submitted through November 2, 2004. Please forward your written comments to Mr. Jim Bellon, 97 CES/CEVN, at the address indicated above. Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script that reads "Dan E. Stator".

DAN E. STATOR
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives



DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Staton
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73523

Ms. Margaret Graham
Oklahoma Department of Environmental Quality
Consumer Assistance Program
P.O. 1677
Oklahoma City, Oklahoma 73101

Dear Ms. Graham:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

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Sincerely,

A handwritten signature in cursive script that reads "Dan E. Staton".

DAN E. STATON
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives



DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Staton
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73523

Oklahoma Department of Wildlife Conservation
Natural Resources Section
1801 North Lincoln
P.O. Box 53466
Oklahoma City, OK 73105

Dear Agency Representative:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

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Sincerely,

A handwritten signature in cursive script that reads "Dan E. Staton".

DAN E. STATON
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives

WILDLIFE CONSERVATION COMMISSION

Bruce Mabrey
CHAIRMAN
Bill Phelps
VICE CHAIRMAN
John D. Groendyke
SECRETARY
Mac Maguire
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MEMBER
Lewis Siles
MEMBER
Wade Brinkman
MEMBER



BRAD HENRY, GOVERNOR
GREG D. DUFFY, DIRECTOR

DEPARTMENT OF WILDLIFE CONSERVATION

1801 N. LINCOLN P.O. BOX 53465 OKLAHOMA CITY, OK 73105 PH. 521-3851

July 5, 2005

Mr. Jim Bellon
97 CES/CEVN
97th Civil Engineer Squadron
401 L Avenue
Altus AFB, OK 73523

RE: Gate Security Improvements at Altus Air Force Base, Oklahoma

Dear Mr. Bellon,

This is in response to the draft Environmental Assessment (EA) that addresses gate security improvements at Altus AFB and associated environmental impacts. We have reviewed the draft EA and in general concur with its contents. For your reference, I have attached a copy of the letter sent to your office dated October 29, 2004.

The draft EA accurately reflects recent changes made to the federal list of threatened and endangered species. The attached letter does not reflect these recent changes. For future reference, federally listed species that have been known to occur in Jackson County include the Interior Least Tern and Whooping Crane both of which are listed as endangered. The Black-Tailed Prairie Dog has been eliminated from the list.

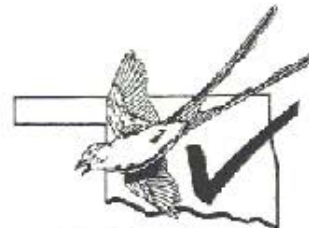
We appreciate the opportunity to review and provide comments on this project. If we can be of further assistance, please contact our Natural Resources Section at 405-521-4663.

Sincerely,

A handwritten signature in dark ink, appearing to read "Ferrell March".

Ferrell March
Natural Resources biologist

attachment



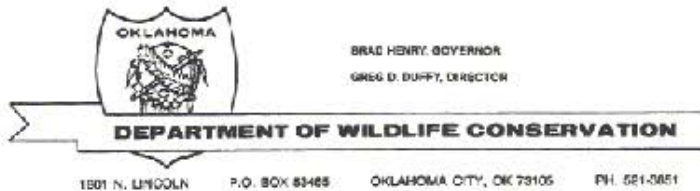
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WILDLIFE CONSERVATION COMMISSION

Bruce Melroy
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 SECRETARY
 Mac Maguire
 MEMBER

M. David Ross
 MEMBER
 Harland Stonedipher
 MEMBER
 Lewis Sides
 MEMBER
 Wade Brinkman
 MEMBER



October 29, 2004

FILE COPY

Mr. Jim Bellon
 CES/CEVN
 97th Civil Engineer Squadron
 401 L Avenue
 Altus AFB, OK 73523

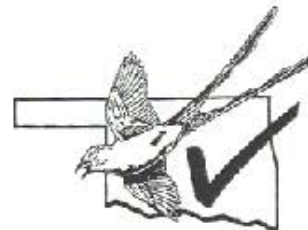
RE: Gate Security Improvements at Altus Air Force Base, Oklahoma

Dear Mr. Bellon,

This is in response to your notification concerning an environmental assessment for gate security improvements at Altus AFB. The proposed project involves improvements to the existing gate security at the Main, South and North gates.

We have reviewed the information sent to this office regarding the proposed project and have compared this against our current records for state and federal listed species, species of special concern and wildlife management areas. Based on our review, the proposed project is not likely to have negative impacts on federally or state listed species or species of special concern. However, several threatened and endangered species have been known to occur in Jackson County. For your convenience, I have listed Threatened (T), Endangered (E) or Candidate (C) species in the table below along with their associated status.

Common Name	Scientific Name	County	Designation
Interior Least Tern	<i>Sterna antillarum</i>	Jackson	E
Whooping Crane	<i>Grus Americana</i>	Jackson	T
Black-Tailed Prairie Dog	<i>Cynomys ludovicianus</i>	Jackson	C




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For additional information on sensitive species, we recommend that you contact the Oklahoma Natural Heritage Inventory, 111 E. Chesapeake Street, Norman, Ok. 73019. For information on federally listed threatened or endangered species, contact the USFWS, Ecological Services, 222 South Houston, Suite A, Tulsa, Ok. 74127 or visit them online at <http://ifw2es.fws.gov/Oklahoma/endsp.htm>. We appreciate the opportunity to review and provide comments on this project. If we can be of further assistance, please contact our Natural Resources Section at 405-521-4663.

Sincerely,



Ferrell March
Natural Resources biologist



DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Staton
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73523

Department of the Army
Tulsa District, US Army Corps of Engineers
1645 South 101st East Ave
Tulsa, OK 74128-4609

Dear Corps of Engineers Representative:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

Any questions concerning the proposal should be directed to our consultant, Science Applications International Corporation (SAIC). The point of contact at SAIC is Mr. Kent Wells. He can be reached at (210) 731-2217. The comment period for this action is 30 calendar days from October 4, 2004. Comments may be submitted through November 2, 2004. Please forward your written comments to Mr. Jim Bellon, 97 CES/CEVN, at the address indicated above. Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script, reading "Dan E. Staton", is written over a horizontal line.

DAN E. STATON
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives



DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Stator
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73523

Merritt E. Youngdeer, Muskogee Area Director
US Bureau of Indian Affairs
Federal Building and US Courthouse
101 North 5th Street
Muskogee, OK 74101

Dear Mr. Youngdeer:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

Any questions concerning the proposal should be directed to our consultant, Science Applications International Corporation (SAIC). The point of contact at SAIC is Mr. Kent Wells. He can be reached at (210) 731-2217. The comment period for this action is 30 calendar days from October 4, 2004. Comments may be submitted through November 2, 2004. Please forward your written comments to Mr. Jim Bellon, 97 CBS/CEVN, at the address indicated above. Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script that reads "Dan E. Stator".

DAN E. STATON
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives



DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Staton
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73523

United States Fish and Wildlife Service
Director, Ecological Services Office
222 South Houston Avenue, Suite A
Tulsa, OK 74127

Dear USFWS Representative:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12572, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

Any questions concerning the proposal should be directed to our consultant, Science Applications International Corporation (SAIC). The point of contact at SAIC is Mr. Kent Wells. He can be reached at (210) 731-2217. The comment period for this action is 30 calendar days from October 4, 2004. Comments may be submitted through November 2, 2004. Please forward your written comments to Mr. Jim Belton, 97 CES/CEVN, at the address indicated above. Thank you for your assistance.

Sincerely,


DANE STATON
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives



DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Staton
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73523

Federal Aviation Administration
Lt Col Donna Maddox
Headquarters FAA, Southwest Region
ASW 910
Fort Worth, Texas 76193-0910

Dear Lt Col Maddox:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

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Sincerely,

A handwritten signature in dark ink, reading "Dan E. Staton", is written over the typed name.

DANE STATON
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives



DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Staton
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73525

US Bureau of Indian Affairs
Anadarko Area Office
P.O. Box 368
Anadarko, OK 73005

Dear Agency Representative:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

Any questions concerning the proposal should be directed to our consultant, Science Applications International Corporation (SAIC). The point of contact at SAIC is Mr. Kent Wells. He can be reached at (210) 751-2217. The comment period for this action is 30 calendar days from October 4, 2004. Comments may be submitted through November 2, 2004. Please forward your written comments to Mr. Jim Bollen, 97 CES/CEVN, at the address indicated above. Thank you for your assistance.

Sincerely,

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DAN E. STATON
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives



DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Staton
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73525

US EPA, Region VI
Federal Assistance Section (5E-FF)
1445 Ross Avenue
Dallas, TX 75202

Dear Agency Representative:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

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DAN E. STATON
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives



DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Staton
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73523

Oklahoma Natural Heritage Inventory
Oklahoma Biological Survey
111 E. Chesapeake Street
Norman, OK 73019-0575

Dear Agency Representative:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

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DAN E. STATON
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives

DEPARTMENT OF THE AIR FORCE
97th AIR MOBILITY WING
ALTUS AIR FORCE BASE OKLAHOMA

1 Oct 04

Dan E. Staton
Chief, Environmental Flight
97th Civil Engineer Squadron
401 L Avenue
Altus AFB OK 73523

Oklahoma Historical Society
Shepherd Mall
2704 Villa Prom
Oklahoma City, OK 73107

Dear Agency Representative:

The United States Air Force is preparing an environmental assessment for gate security improvements at Altus AFB. The attachment to this letter describes the proposal and the alternatives being analyzed in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your comments concerning the proposal and any potential environmental consequences of the action. To facilitate cumulative impact analysis, we would also appreciate identification of major projects in the vicinity that may contribute to cumulative effect.

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Sincerely,

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DAN E. STATON
Chief, Environmental Flight

Attachment:
Description of Proposed Action and Alternatives

PUBLIC NOTICE

**THE UNITED STATES AIR FORCE
97th AIR MOBILITY WING, ALTUS AIR FORCE BASE, OKLAHOMA**

**Invites
PUBLIC COMMENT**

**ON THE ENVIRONMENTAL ASSESSMENT AND
FINDING OF NO SIGNIFICANT IMPACT
FOR GATE SECURITY IMPROVEMENTS**

The 97th Air Mobility Wing, Altus Air Force Base (AFB), Oklahoma, has prepared a draft environmental assessment (EA) and proposed Finding of No Significant Impact (FONSI) for the construction of gate security improvements at Altus AFB.

The draft EA, prepared in accordance with the National Environmental Policy Act and Air Force instructions, evaluates potential impacts of the proposed action and no-action alternative on the environment. The EA evaluated noise, air quality, earth resources, water resources, hazardous materials and wastes, biological resources, utilities and infrastructure, and socioeconomics.

Copies of the draft EA and proposed FONSI are maintained at the City of Altus Public Library, 421 North Hudson, and at the Office of Public Affairs, 97 AMW/PA, 100 Inez Boulevard, Suite 2, Altus AFB, Oklahoma, 73523-5047.

Comments may be submitted through June 28, 2005 and should go to James Weslowski, 97th Air Mobility Wing Public Affairs, (580) 481-5964.

<p>PRIVACY ADVISORY: Comments on this draft EA are requested. Letters or other public comment documents provided may be published in the final EA. Information provided will be used only to improve analysis of issues in the draft EA. Comments will be addressed in the final EA and made available to the public. However, only the name of the individual and specific comments will be disclosed.</p>
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